

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—Wash.

VOL. VI.

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No. 11.

Conducted by J. BUEL, of Albany.

TERMS.—ONE DOLLAR per annum, to be paid in advance. Subscriptions to commence with a volume.

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The Cultivator is subject to common newspaper postage. The published volumes are for sale at the subscription price, or, if bound, the cost of binding added. The bound volumes may be also had of our Agents in the principal cities.

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

To our Patrons.

Being of opinion that the general wish of the public is that the Cultivator should be continued, and through the instrumentality of the friends of the paper, we would with great pleasure and satisfaction state, that arrangements have been made by which we hope to not only extend its circulation and usefulness, but to have it continued in the same form and at the same price as formerly. Arrangements having been made with Mr. Tucker, the present able editor of the Genesee Farmer, to discontinue his paper at Rochester and have it consolidated with the CULTIVATOR under the same title at Albany, cannot fail to give to this paper a more wide and extensive circulation among subscribers, but will add greatly to its correspondents and contributors, thereby enhancing the value of the paper as a standard agricultural work of reference, and (we hope) giving general satisfaction both to the patrons of the Cultivator and Genesee Farmer.

Under these considerations we would refer our readers, more particularly our agents, to the prospectus of the union of the two papers, which will be found on our last page.

We would inform our subscribers that the last or next number of this paper, with the index, &c. will not be issued till about the first of January.

Acknowledgments.

We acknowledge the receipt of the second series of the SCHOOL DISTRICT LIBRARY, from the publishers Messrs. Harpers & Brothers, 82 Cliff street, New-York. Their advertisement, with the names of the selection of books contained in the series, will be found on our last page, to which we would respectfully request the attention and perusal of our readers.

The price of the first and second series which are already published, is twenty dollars each, including a case.

We also acknowledge the receipt of a NATIVE MULBERRY LEAF from H. Wells, Esq. of Oxford, Ohio, measuring six inches across and nine inches in length, as large as any of the Morus Multicaulis we have seen. Mr. W. says he probably could have obtained one larger had he selected it before the frost destroyed them. He also mentions several varieties, which he says grow larger in his garden than the multicaulis. He does not give, however, any specific name for them.

Comparison of the Temperature of October 1838, and October 1839,

Deduced from observations made at the Albany Academy.

	Oct. 1838.	Oct. 1839.
Temperature of 1st half month	52.87	52.83
Temperature of 2d half month	42.46	50.04
Temperature of the month	47.66	51.43
Highest degree	75.	74.
Lowest degree	23.	21.
Monthly range	52.	53.
No. clear days	15	20
No. cloudy days	16	11
No. of days rain fell	11	5
No. of days snow fell	2	
Rain gauge, inches	3.32	1.35
WINDS—North, (days)	2½	6
Northeast	2	4½
East		2
Southeast	1	1½
South	11	12
Southwest	3½	2½
West	2½	
Northwest	8½	2½

Large Calf.

A calf of the improved Durham breed, has been raised by Mr. Winant Youngmans, of West Sandlake, Rensselaer Co. which, although but five months old, weighs 554 lbs.

Constitution of the New-York State Agricultural Society.

The style of this society shall be "The New-York State Agricultural Society;" its objects shall be to improve the condition of agriculture, horticulture and the household arts.

Section 1. The society shall consist of such citizens of the state as shall signify in writing their wish to become members, and shall pay on subscribing not less than one dollar, and annually thereafter not less than two dollars, and also of honorary and corresponding members.

The presidents of county agricultural societies, or a delegate from each, shall ex-officio be members of this society.

Sec. 2. The officers of the society shall consist of a president, four vice-presidents, a recording secretary, a corresponding secretary, a treasurer, an executive committee, to consist of the officers above named and three other members, of whom three shall constitute a quorum, and a general committee, the members of which shall be located in the several counties, and be equal to the representatives in the house of assembly.

The payment of fifty dollars or more, shall constitute a member for life, and shall exempt the donor from annual contributions.

Sec. 3. The recording secretary shall keep the minutes of the society.

The corresponding secretary shall carry on a correspondence with other societies, with individuals, and with the general committee, in furtherance of the objects of the society.

The treasurer shall keep the funds of the society, and disburse them on the order of the president or a vice-president, countersigned by the recording secretary; and shall make a report of the receipts and expenditures at the annual meeting in February.

The executive committee shall take charge of and distribute or preserve all seeds, plants, books, models, &c. which may be transmitted to the society; and shall also have the charge of all communications, designed or calculated for publication, and so far as they may deem expedient, shall collect, arrange and publish the same in such manner and form as they shall deem best calculated to promote the objects of the society.

The general committee are charged with the interests of the society in the counties in which they shall respectively reside, and will constitute a medium of communication between the executive committee and the remote members of the society.

Sec. 4. There shall be an annual meeting of the society on the Thursday following the second Tuesday of February at the capitol in the city of Albany, at which time all the officers shall be elected by a plurality of votes and by ballot. Extra meetings may be convoked by the executive committee. Fifteen members shall be a quorum for the transaction of business.

Sec. 5. This constitution may be amended by a vote of two-thirds of the members attending any annual meeting.

Address of Judge Buel,

Before the New-Jersey State Agricultural Society, held at Princeton, on the 10th of August, 1839.

GENTLEMEN:—The short notice I had of your meeting, and of your wish that I should address you on this occasion, together with my previous engagements, have prevented my being able to give you any thing more than a brief and imperfect sketch of what it would be my wish to state more in detail, and in a less imperfect form.

The earth every where abounds with the elements of human happiness and comfort. To man has been assigned, by a beneficent Providence, the capacity and duty of cultivating the soil, and of rendering these elements subservient to our wants and our highest enjoyments. And it has been wisely ordained, that our temporal reward shall be in a measure proportioned to the fidelity with which we perform our high duties to ourselves, our fellow-men, and our Creator. The cultivation of the earth was the primitive employment of man, when

"Adam del'd, and Eve spun."

It is still the great business among all civilized nations, and particularly so in our country. It ever must remain so, as it is alike necessary to our wants, our happiness, and our existence, as an independent people. All other arts and employments which distinguish civilized life, have grown out of agriculture. They are necessarily dependent upon it for support and existence.

If agriculture were to cease, or to withhold her contributions, all other arts, and trades, and professions, would fail, the face of the earth would again become a wilderness, and man a savage.

A cursory survey of the present condition of the globe, will serve to satisfy us, that nations are enlightened and prosperous, and, I wish I could add, free, in proportion to the improved or neglected state of their agriculture; and that the other arts of useful industry prosper or decline, as this parent art is productive or unproductive. Spain, Italy, Asia Minor, and Egypt, have, in turn, been the granaries, in a measure, of the civilized world.—While their agriculture flourished, commerce and the arts flourished among them, and they were prosperous and powerful. But as the agriculture of these countries declined, or was destroyed by the inroads of hostile armies, by the arbitrary sway of despotic power, or the corrupting influence of commercial cupidity and extravagance, the physical and moral energies of these nations were broken down, and they became impotent and servile. Some of their once fairest portions have been made desert by the violence of man; commerce and the arts have fled to countries where agriculture flourished, and their population has degenerated into a miserable set of poor, ignorant, enslaved human beings, objects of pity and christian benevolence.

The intellectual and moral condition of a people, of a district, or even of a neighborhood, may also be pretty correctly judged of from the condition of its agriculture. For if the people are intelligent and wise, this intelligence will soon manifest itself in the improved condition of the soil—for knowledge is more efficient than animal power in the labors of the farm; in comfortable and neat buildings, and in chaste and extensive rural embellishments. If they are wise, they will find in rural labor their natural theatre of action, and the sure means of improving their circumstances, and of multiplying around them the pleasures and enjoyments of life. Where the mental and physical powers are so happily combined and employed upon objects so useful to themselves and to society, as those embraced by agricultural labor, there is but little inducement—little temptation—to immoral habits. But, on the contrary, where agricultural prosperity is most manifest, we are sure to find in the inhabitants a strong disposition to maintain a healthful state of morals, and to preserve in full vigor all the relative and social virtues which constitute the main ingredients in our cup of happiness. An improved state of agriculture not only promotes intellectual and moral improvement, but it tends to lessen the evils of pauperism and crime. These are generally the fruits of indolent habits, of body or of mind, which agriculture neither encourages nor permits. Although our population are five-sixths farmers, they constitute a lean minority both in our poor-houses and prisons. While they attend to the duties of their station, they are not likely either to rob or to beg to procure bread. Scotland has but few paupers, and Flanders less.

I need not remind this enlightened assembly of the important bearing which the condition of our agriculture, and of our agriculturists, has, and ever must have, upon our political destinies. The farmers of our country will be the last class to be corrupted by the bribes and blandishments of power—the last class to part with republican habits—to degenerate, under the baleful and enervating influences of extravagance, dissipation and fashion. The higher the condition of agricultural improvement, the greater will be the intelligence and independence of the agriculturist, and the stronger his inclination and his influence in perpetuating the virtues of our revolutionary fathers, and in maintaining in their purity, the institutions which they established, and in defending them by force, if need be, from foreign and domestic foes. Cherish, then, this interest, above all others. Enlighten it, encourage it, honor and reward it—for it is the palladium of your freedom.

Whether, therefore, we regard agriculture as a necessary branch of industry, indispensable to our wants; as a natural employment, adapted to the development and useful employment of our physical and mental powers; or in its influence upon the moral, social and political aspect of society, we find in it abundant claims to our highest regards, and warmest support.

If we look back in history to the first settlement of this country, we shall recognize, upon our Atlantic border, a rich and fertile soil, bountiful in the returns which it annually made to agricultural labor, and a contented and thriving population. If we look at the same country now, what is its aspect? Or, rather, what was its aspect forty years ago, before the spirit of improved husbandry visited our shores—before science had descended to enlighten the husbandmen in the principles of his business, and before the example of a better system of husbandry had begun to change our practice.—Millions of our once fertile acres had been worn out by reckless management, and thrown into old fields and commons, as unworthy, any longer, of culture; and tens of thousands of other acres, possessing equal, and in

most cases, greater natural fertility, had been permitted to lie uncultivated and waste, for want of draining or embanking, a nuisance to the public eye, and the prolific source of disease and death. The farmers were growing poor—were degraded by ignorance and apathy—were seeking for more lucrative employments, or flying to the west, in search of new and unexhausted soils. No cultivated grasses, no alternation of crops, no economy in manures, no thorough draining, and but poor attention to farm stock, our lands were going down, down, down, in fertility, till many of them no longer paid for their culture. The character of the agriculturist sunk in a corresponding degree. Men shunned it as an unprofitable, irksome, and servile employment; and every young aspirant to fame and fortune sought to gratify his ambition at the bar, the counter, or even in the humble employments of life, rather than in the business of farming.

Let us now cast our eyes to the parallel history of agriculture on the old continent, and see what changes have taken place there, while our own soil was being deteriorated and exhausted of its fertility. I will cite for illustration, the husbandry of Great Britain, and of Flanders, though if I should carry the comparison into the German States, Holland, &c. the contrast might be equally remarkable and mortifying.

Great Britain has doubled, and her Scottish territory trebled, the products of her agriculture. The agricultural products of Great Britain now annually exceed, in amount, those of 1775, according to President Humphreys, three hundred and fifty millions of dollars; and yet, in the opinion of her most intelligent men, the British soil is capable of being made to double its present products.

Of Flemish husbandry, I will enter somewhat more into detail; because, in climate, in soil, and in the general make of the country, Flanders bears a close resemblance to the southern part of New-Jersey. The climate of Flanders is very similar to this; the surface of the country is flat, and was naturally wet and cold; the soil generally sandy and poor, except upon the streams coming from the interior, and at their embouchure into the ocean. And yet, with all these natural disadvantages, there is probably no country in Europe richer in the products of the soil, owing principally to her excellent system of husbandry; and no where, apparently, is the condition of the agricultural population better—and the country more exempt from pauperism and crime, than in Flanders. Every acre, it is said, is made to maintain an inhabitant. This high state of improvement, it is true, has been the work of ages. But the sooner a work of improvement is begun, the sooner it will be completed, and the sooner it will return a profit on the outlay. The difficulties to be overcome in Flanders were great. In some cases, in order to lay the land dry, it was cut into small divisions, which were surrounded by deep trenches, to receive and conduct off the waters, and the surface graded so as to slope from the centres to the borders. In other cases seeds of larch were sown upon very poor grounds, to produce, by a process of years, a vegetable mould, from the falling foliage, sufficient to nourish a crop; and when this was obtained, the trees were cut down, and the soil subjected to careful tillage. These extraordinary cases are not stated for imitation, but to show the persevering labors of that industrious people.

The characteristics which distinguish Flemish husbandry, and which have rendered it so uncommonly productive and profitable, are: a thorough draining of the land; a perfect pulverization of the soil, by frequent and deep ploughings, or by trenching; the subjecting the lands to alternate husbandry; the extensive culture of clover, of root-crops, and of tares, for soiling and winter feeding their cattle; the careful extirpation of all weeds; a remarkable attention to the saving, and a judicious application, of manures, particularly of liquid manures; a constant occupation of the ground with crops or herbage; and a judicious rotation, differing in almost every district, on account of the difference in soil, and adapted and settled, after long experience, such as is best suited to the local market—as will best repay the farmer's cost and toil by an abundant return—best cultivate the soil for a succeeding crop—best enrich it for the purpose of increasing fertility, and most effectually prevent, by judicious alternation, that natural disgust which even good soils manifest to reiterated crops of the same description; the small size of farms, and the keeping them in constant crop, no man attempting to manage more than he can manage well; the cutting of the forage, and grinding the grain, for farm stock, thereby greatly lessening this heavy item of expenditure; and, finally, the farmers giving their undivided attention to their farms, and their industrious frugal habits of living—no lumbering, no fishing, no speculation, no hankering after office.

I will take the liberty of making a brief comparison here, of the products of Flemish and Scotch husbandry, on the one hand, and of American husbandry on the other, in some of the staple productions of both continents, as the former were rated twenty, and the latter forty years ago.

The Rev. Mr. Radcliffe, who was sent to Flanders for the purpose of studying its husbandry, stated the average product of its soil to be—in wheat, 32 bushels; rye, 32½ do; oats, 52 do; potatoes, 350 do, per acre.

Sir John Sinclair, whose reputation and veracity are well known, in his Code of Agriculture, states the average product of Scotch agriculture in good soils, as follows: wheat, 32 to 40 bushels; barley, 42 to 50 do; oats, 52 to 64; turnips, 30 tons; clover, three tons; and po-

tatoes, from 8 to 10 tons; or, allowing 60 lbs. to the bushel, from 266 to 333 bushels.

Mr. Strickland, an eminent British farmer who resided some time in Maryland, and who travelled much in the United States, 40 or 50 years ago, in a communication to the British Board of Agriculture, stated our average wheat crop at 12 bushels the acre, except in the county of Dutchess, in New-York, where he allowed it to amount to 16 bushels the acre.

Gen. Washington, in 1790, in a letter to Sir John Sinclair, computed the average crop in Pennsylvania, which he then considered the best cultivated state, as follows:—wheat, 15 bushels; rye, 20; oats, 30; Indian corn, 25; potatoes 75.

It will readily be perceived from these estimates, that our acreable products were not half as great as those of Flanders or Scotland; or, in other words, that a day's labor on the farm did not effect half the benefit here that it did there. Was this owing to any natural inferiority in our soil? Certainly not. Nature had been equally bountiful to both continents. But we had abused and wasted her bounties, while they had preserved and improved them. Our decrease grew out of a bad system of farming; their increase resulted from a more rational and improved system. The disparity arose from the science which guided labor in one case, and the want of it in the other—to that science which is still courting our acquaintance, and which we must become familiar with and apply, if we would profit largely from those privileges which God has bestowed alike upon us all.

But the sombre picture of our agriculture has undergone material changes for the better within the last forty years. In many districts, and on particular farms, the fertility of the soil has been renovated; draining has been commenced; manures have been better economized and applied, and new materials of fertility discovered and employed; root culture has obtained a footing; artificial grasses have been cultivated; our herds and flocks have been better selected, and better fed; new labor-saving implements have been brought into use; the alternating system has been adopted to a considerable extent; and last, though not least, the principles of agricultural science have been more extensively diffused, better understood, and more generally applied, and a knowledge of the improvements and better practices in farming promulgated through the instrumentality of our agricultural periodicals. Wherever these innovations upon ancient practice have been made, a corresponding benefit to the cultivator, and to the neighborhood, has been palpable; lands have been enhanced in value; the husbandmen has increased his wealth, and advanced in respectability and usefulness, and every department of business has felt and acknowledged the vivifying influence of the happy change.

I have seen large tracts of land, in the valley of the Hudson, originally fertile, so worn out by bad husbandry, as to be thrown into old fields and commons, and thought unworthy of culture.

I have seen many of these same lands, in a period of thirty years, again restored, by good husbandry, to their natural fertility, and selling, for farming purposes, at one hundred, and one hundred and twenty dollars an acre.

It is to accelerate these improvements in the cultivation of our soil, that agricultural associations have been formed, and are forming, in every part of our country; and where they have been conducted with spirit, and with a view to public improvement, they have been eminently useful. It is to co-operate in these praiseworthy efforts, that the Association, which I have now the honor to address, has been established. IT CAN DO MUCH in the good cause—it WILL DO MUCH in dispelling the clouds of prejudice and ignorance, which still overshadow our agricultural operations, and in diffusing light and knowledge and laudable emulation—if its members will persevere in the philanthropic determination, which I trust has brought them together—of rendering a substantial service to others, as well as to themselves.

Let us, for a few moments, descend to particulars. I think I have seen, on my passage, at various times, through New-Jersey, much land under culture, that does not give, what may be termed, half a crop, and which can hardly yield a net profit, above the expense of ordinary labor and charges; but which might be made to yield, under the Flemish, or Scotch, or improved American system of management, a handsome income to the proprietors. Let us suppose that it would require an outlay of fifty dollars an acre, in draining and manuring, to bring thousands into a highly productive state, as productive as are now the soils in the land of promise—upon the borders or in the valley of the Mississippi—and I believe this is a very liberal allowance for the outlay—the interest of this sum would be three dollars an acre per annum. To offset against this three dollars a year, the proprietor or cultivator would probably receive an additional ten or fifteen bushels of wheat, an increase of his corn crop of twenty or thirty bushels the acre, and of other crops in proportion. A difference of ten or fifteen dollars a year, or even of five dollars, in the acreable profits of a farm, will, in a few years, make a wonderful difference in the condition of the good and bad farmer. The labor upon a good soil is no greater than that required upon a bad soil; while the pleasure of working the former, admits of no comparison with the disgust which one feels in working the latter. Does any one fail to see, in this estimate, the palpable benefits which would result from the limiting our capital and labor to the acres that we can cultivate well?

I could give many individual illustrations of the fact

that I am now assuming, viz: that capital and labor may be more profitably expended in cultivating a few acres well, than in cultivating many acres badly. I will mention but a few; for no gentlemen present can have failed to notice the vast disparity in profits between well and ill cultivated farms.

A farm of 400 acres, naturally excellent wheat land, in the vicinity of Geneva, N. Y. had become so exhausted by the *skinning system*, that the owner thought he obtained a good price when he sold it at \$10 the acre, or for \$4000. The purchaser happened to be an intelligent Scotch farmer. With lime, sheep, and manure, and Scotch management, in ten years he so raised the value of these lands, that he was offered \$100 the acre, or \$40,000 for the farm. He declined the offer, declaring that it gave him a nett income, over the charges and expenses of his family, of \$4000, or ten dollars an acre, equivalent to the interest of \$150 an acre. And Mr. Robinson, the present proprietor, considers his improvements as but well begun.

A Mr. Harri-, near Poughkeepsie, lately gave a statement of the farm produce actually sold from his farm in one year, which, after deducting the moneys laid out for labor, &c. left him an annual income of more than 17 dollars an acre on every acre of his farm. His farm, forty years ago, would not have brought over \$25 an acre. It would now sell for \$125 an acre.

The sandy lands of Kinderhook plains, which, in my recollection, sold from three to seven dollars an acre, now sell at 60 or 70 dollars an acre, in a state of modern improvement.

Mr. Merritt, of Dutchess, purchased 64 acres of land, which then maintained one yoke of oxen, two cows, and one pair of horses. It now maintains two pair of horses, one yoke of oxen, four cows, twenty hogs, and two hundred sheep.

Mr. Hawkins, of the Shakers Society at New-Lebanon, a few years since bought of the now President of the United States, the half of a farm of 240 acres, the whole of which then cut but twenty-five tons of hay.—By manuring and good management, he is now enabled to cut on this half 120 tons of hay, and to keep in tillage some acres more than is appropriated to arable crops on the other half.

Cases have been cited, by highly respectable authorities, of instances in Pennsylvania, Delaware, and Maryland, of lands, once poor, being made to yield an income equal to the interest of 200, 300, and even 500 dollars per acre. I feel warranted in saying, from what I have seen and heard, that every tolerable good acre of land, lying contiguous to navigable waters, to market and manure, may be made to give an income of fourteen dollars—thus giving to the land an intrinsic value of \$200 per acre.

If a man has five hundred dollars, which he wishes to expend upon a dwelling for his family, would he be wise or prudent in exhausting his means upon the *frame and covering of a large building*, or upon the *frame, finish and furniture of a snug neat dwelling*, which should afford room enough and be infinitely more comfortable than the big house, even were it finished and furnished to his mind? No one will hesitate to say, that the five hundred dollars ought to be expended upon the comfortable, in preference to the large house. Apply this principle to agriculture. A farmer had better expend his five hundred dollars in bringing a *small* piece of land into high and profitable culture, than to waste it upon a *large farm*, which he does not, or cannot, cultivate well, and which nets him mere nominal profits. Capital and labor are the true sources of wealth. If concentrated, they produce, in agriculture, as in every other business, a more potent effect than when they are divided, and spread over a broad field of operations. It is not the number of men that constitute the efficiency of an army; but the intelligence and skill of its leader, and the subordination and discipline of the corps. It is not the extent of lands that determines the farmer's profits, but the intelligence and skill of the master, and the high state of culture to which he brings them. The profits on fifty acres, well managed, are often greater than the profits of hundreds of acres badly managed.

The farm I occupy was naturally as poor, and as forbidding in appearance, as the poor lands of New-Jersey. It was considered a barren sand; and I became the butt of ridicule to some of my acquaintance, for attempting to bring it under profitable culture. It was a lean sand, abounding in springs, swamps, and low wet grounds.—In twenty years, however, it has assumed quite a different appearance. It is now worth \$200 an acre for farming purposes; that is, it nets me more than the interest of \$200 per acre. My average acreable product in corn is 80 bushels; in grass, nearly or quite 3 tons; in potatoes, in favourable seasons, 300 bushels; and my other crops are in proportion. And these crops are grown at less expense, for culture, than they can be on lands that are more stiff, and naturally more fertile. These improvements, it is true, have required a considerable outlay of capital, in draining, clearing, manuring, and in some portions to the extent, probably, of \$50 the acre. Without the outlay, these reclaimed lands were valueless; with it, they are highly productive, and give me a liberal per cent on the money expended; and I have no doubt I could readily sell for cost and charges. I beg to be pardoned for this allusion to my own farming. I make it merely in confirmation of the fact, that sandy, wet lands, can be profitably reclaimed and cultivated, on this, as well as on the old continent.

Money is the sinew of agricultural improvement, as well as of war—with this difference, that agriculture is the parent of plenty, and war the cause of misery and

want. Capital no where makes a more sure, and not often a more liberal return, in the end, than when judiciously applied to agricultural improvement. It is like the seed we commit to the earth. If there is no seed there can be no crop. If there is no outlay, there can be no return. And when there is not both seed and outlay, the product must be small indeed.

It remains for me, gentlemen, to suggest some of the means which present, for giving efficiency to your efforts, to improve the agriculture of your State, and, with it, the moral and intellectual condition of its population; for I consider the culture of the soil and the culture of the mind reciprocally acting upon and benefitting each other. The mind must be enlightened before the soil can be greatly improved; while the improvement of the soil will afford the best facilities for improving the mind, and the strongest inducements for the formation of moral habits.

I have said that the members of this Society can do much towards effecting these great objects of improvement; and they can do so both in their associate and individual capacities—if they will persevere in their intention to do a public good. And this, after all, to a greater extent than is generally imagined, is the best way to promote, if not one's individual gain, at least his personal happiness. There is a pleasure in the consciousness of having contributed to the prosperity of those around us—of having fulfilled, if only in part, this great duty of life: which neither wealth nor distinction, without it, can ever impart. A man who is surrounded by idleness and poverty, and by their usual concomitant vice, be his business what it may, has, to say the least, but a bad set of customers, and enjoys but few of the pleasures of social intercourse; but, if surrounded by an intelligent, industrious, thriving, agricultural population, he derives a profit, directly or indirectly, and a pleasure, from them all; and if he has been particularly instrumental in producing or maintaining this happy state of society, I don't know what higher pleasure he can expect or desire in his social relations of life.

The members of this Society may do a public good in either or all of the following ways:—

1. *By the stimuli of personal example*—of doing themselves what they would commend in others—in the family, on the farm, and in society. Mere theory is but speculation. In agriculture, it involves expense and uncertainty. But theory, confirmed and illustrated by practice, if it has merits, is a treasure, which all who see can appreciate, and which few who do see, will fail to profit by. A good farmer, therefore, is a help, and a wholesome stimulus, to all around him.

2. *By the stimuli of competition*, to be excited by the hope of distinction and reward. Competition in agriculture calls into exercise our best powers; which, when once successfully put into action, seldom flag, or fail to lead to the best results. Improvements are progressive; and where we have made one improvement, we have learnt an important lesson, viz: that we can improve. This fact once impressed upon our minds, both ambition and interest impel us forward. Had we not been stimulated by competition, to make the first effort, we should never have made a second, or a third, and should have believed, as thousands now do, that because we were brought up on a farm, there is nothing further for us to learn. Revolutions in agricultural improvements, as is said in political matters, never go backwards.—The great object is to give the first impulse. This the hope of distinction and reward are admirably calculated to effect.

3. *By the diffusion of agricultural knowledge.* There is no intelligent farmer, who will fail to profit by the better practices of his neighbours. Agricultural journals extend his neighbourhood, in this respect, over the Union, and, in truth, over Great Britain also. Every important improvement, and successful practice in husbandry, will be found recorded in these journals; and although they may contain much speculative matter, there is always enough that is useful, sound, and available, to at least thrice compensate him for the price of his subscription. And those, too, who profit from the communications of others, will find pleasure in communicating whatever may occur in their own practice which is likely to benefit the public, and also in promoting the circulation of agricultural journals among their neighbours and friends.

4. *By endeavoring to introduce the study of the principles of agriculture into our common schools.* Youth is the season to sow the seeds of useful knowledge—to instil principles which shall govern in maturer years.—And where these principles are timely and properly taught and inculcated, there is but little doubt they will expand into usefulness. Education gives the impress to manhood. It makes the professed Christian, Mahometan, or Pagan; it makes lawyers, doctors, or farmers; it makes the idler, the vagabond, the libertine, or the prudent, moral, industrious citizen. As the twig is bent, so will the tree incline. Every effort that is made to diffuse agricultural science, will tend to render its pursuits more lucrative, more honorable, and desirable, and to benefit society in a corresponding degree. We want professional schools of agriculture, but, till we have the common schools may be made a tolerable substitute for teaching the elementary principles of the art.

And lastly, *by procuring for agriculture the patronage of the legislature.* If there is one business more important to the prosperity of the state than another, it is agriculture. If there is one interest that can be more benefited by legislative patronage than another, or whose interests it would seem the bounden duty of the

legislative councils to foster and promote, than another, it is agriculture. This branch of labor gives employment to a great majority of your population; it supplies the necessities of life, and is the good source of public and private wealth and happiness. But government alone, be it ever so minded, can do but little to advance agricultural improvement, without the active co-operation of the people. We must put our own shoulders to the wheels before we call upon Hercules for help. And it is matter of history, highly creditable to the learned professions, as they are denominated, that they have always been among the most active and efficient in promoting agricultural improvement, from the circumstance perhaps, of their better appreciating its public advantages: and, also, that they go to work without the prejudice and conceits, which are apt to hang, like the nightmare, about those who have been farmer bred, and which prevents their going ahead in improvement. The founder of the Highland Society, of which I shall speak further, was a lawyer, by the name of McDonald. Most of the agricultural works which have issued from the British press, and which have eminently contributed to advance that nation, as well as ourselves, in agricultural improvement, have been written by clergymen, physicians, and lawyers, who were practically engaged in the business of farming. And in our own country, the greatest stimulants to improvement, and some of the best practical lessons in husbandry, have been given by men of enlarged views, and liberal minds, who have been brought up to other pursuits, but who have taken up farming, as a source of pleasure, or of profit, at a maturer period of life. Enlist, therefore, by all means, men of all classes, and particularly those of enterprise, wealth and influence, in your laudable undertaking.

For your encouragement and example, gentlemen, in the work you have resolved upon, I beg to direct your attention, for a few moments, in conclusion to what I have to offer to Scotland, and to her agricultural society; to Scotland as she was, and to Scotland as she is, in her agriculture; and to the small beginning of her society, to the measures it has pursued, and to the splendid and happy results that have crowned its labors.

And first, to show what Scottish husbandry was, I will quote from the Edinburgh Quarterly Agricultural Journal, the best periodical of the kind, perhaps, now, or ever published.

"To say what was the state of agriculture in Scotland, at the date of the formation of the Highland Society," says this journal, "would, to treat of it minutely, require greater scope than the limits of a periodical would admit. * * * But, to take one sweep over hill and dale, over corn field and meadow, we may at once pronounce the agriculture of Scotland, at that period, to have been wretched—exceedingly bad in all its localities!—Hardly any wheat was attempted to be grown; oats, full of thistles, was the standard crop, and this was repeated on the greater part of the arable land, while it would produce twice the seed thrown into it; turnips, as part of the rotation of crops, were unknown, few potatoes were raised, and no grass seeds or clover were sown. The whole manure of the farm being put on a little bit of the best ground, near the farmstead, where they grew some barley of the coarse sort, termed 'bere,' wherewith to make bannocks, or small beer, or peradventure, if the farm lay at the foot of the Grampians, to brew a portion of 'Mountain-dew.' Since the writer can recollect, a great part of the summer was employed in the now fertile shire of Fife, in pulling thistles out of the oats, and in bringing them home for the horses, or mowing the rushes or other aquatic plants, that grew on the bogs, around the homestead. Such was the state of Scotland, with but little appearance of amendment, up to 1792."

In 1815, the scene had greatly changed. In the low country, "beautiful fields of wheat were to be seen—drilled green crops, and clean fallows every where abounded,—the bogs had disappeared,—the thistles no longer existed. Soon after this the farmer could grow turnips to any extent, and the bare fallow was exploded. The Deans system of draining, and deep ploughing were introduced; 'wet lands were made dry, poor weeping clays were converted into turnip soil,' whole parishes were transformed from the unsightly marshes, into beautiful and rich wheat-fields; and where the plough could scarcely be driven for slush and water, were to be seen heavy crops per acre, and heavy weight per bushel." Scotch agriculture has since been progressively improving, until, as I have before stated, its average products probably double those of this country.

Secondly, of the Highland Society, its origin, its operations, and its present extent, and means of usefulness. "In 1784," says our authority, "a few gentlemen, full of zeal for their country, and it may be a little love of society, formed themselves into a hole and corner club, in a coffee house, called the Exchange, situated in the court of that name, near the 'market cross of Edinburgh.' Here, in the enjoyment of agreeable conversation, and perhaps a good supper, did those worthies talk over plans for the amelioration of the Highlands, and from this nucleus arose the now widely extended and powerful Highland Society," whose members now number twenty-three hundred, and whose, premiums, for the current year, exceed seventeen thousand dollars.

"In the days of its youth and feebleness, the Highland Society, sent the leaven of turnip husbandry into all the glens and straths of the north, by offers of small prizes to certain Highland parishes, and the same may be said as to the growth of clover and the finer grasses. As it advanced in strength, as to numbers and cash, attention was turned to premiums for stock; then came

offers of reward to men of science to discover better implements and machines, to diminish friction, and consequently draught, such as in the threshing mill and other parts of agricultural machinery. Still advancing in the scale of intellect and of science, premiums were offered for essays to bring to light the facts connected with chemistry and natural philosophy; and, under the auspices of the society, was set up the Quarterly Journal of Agriculture, a work which has been the vehicle of conveying so much useful information to the agriculturist, that, we humbly venture to say, it ought to appear on the table and book-shelf of every farmer's parlor. After this, the great stock shows were resolved upon, as another link between the society and the practical farmer, at the same time throwing aside all paltry feeling, and making them open to stock upon both sides of the Tweed (English as well as Scotch.) Nor has the society forgotten the beauty of the country as the premiums offered in regard to planting trees, and the such like subjects testify; and to sum up all, it may be said, the Highland Society has been a 'point de appui,' a rallying point to which the agriculturist of Scotland, might look, and a fostering mother to all who, although strong in talent, were too weak in interest, to make it public."

May the spirit and wisdom which have animated, and guided the Highland Society of Scotland, animate and guide this institution; and may your success and usefulness be as brilliant, as wide spreading, and substantial, as have been theirs.

I have thus endeavored, gentlemen, to show the practicability and importance of improving your agriculture, and have suggested some of the means by which this society may efficiently co-operate in the great work of improvement. The work is a noble one, worthy the philanthropist and the patriot. Its objects are the good of our country, and the happiness of man. And though you may not reach the goal of your wishes, your labors will not be lost. The seed which you sow will produce its tens and its twenty fold, though you may not live to gather the harvest. The work of improvement which you begun, will progress, and be fraught with blessings to your children and your state. And you may be sure of a liberal reward for your exertions, at least in the conscious pride, which every good man feels, in having faithfully performed a high duty to society.

CORRESPONDENCE.

The Tariff—Balance of Trade.

Sing-Sing, September 23, 1839.

FRIEND BUEL.—It appears to me that there are a great many vague notions entertained in the world respecting the effects of a protecting tariff, as it is called, and the balance of trade. A great many specious arguments are made use of, to show how easily we might, by legislative enactments, grow rich; although the way, to my mind, has never been very clearly defined. My views of the subject are the result of reasoning on general principles. I assume, in the first place, that the only real increase in the wealth of a nation consists in those improvements which go to increase production, or which are of permanent utility, such as the improvement of the soil in agriculture, the improvement of machinery in mechanics, the construction of canals and rail-roads to facilitate the exchange of property, or the erection of buildings of good materials where there has been none before. These are the principal means of increasing the wealth of a nation, and I think they are most available where trade is left unfettered. I think all must admit that the greatest desideratum is, that we may enjoy the greatest amount of the good things of this world for a given amount of labor; but it does not follow that, that enjoyment must alone consist in eating, drinking, and wearing yearly the amount of a year's labor. On the contrary, it consists in part in the making of such improvements as I have mentioned, which is as it were enjoyment put at interest, that it may be increased at some future day. Now the question is, under what system will we advance fastest in national wealth? Some say let us have a high tariff, and manufacture all that we can for ourselves; that will enable us to make our exports more valuable than our imports, and the balance in our favor will be that much added to our national wealth. Well, unless we get the balance in some shape, we should be the losers: If we take it in goods, we gain nothing, as most people think, for then there would be no balance; if we take it in specie, it will not add to our real enjoyment so long as we keep it, and not until we exchange it with other countries for something we can eat, drink, wear, or use in some other way, and that leaves us where we began. Here some one more keensighted than his fellows may interpose and say, let us take the balance in specie, and apply it to the construction of works of internal improvement, instead of borrowing foreign capital. I answer, if we do, that puts the money in circulation, and this nation's portion of the currency of the world is limited by the laws of trade; consequently it would flow out as fast as it flowed in: That would make our exports and imports of specie balance each other, and the result would be precisely the same as though we imported no specie and exported none; and that which we have supposed to be applied to works of internal improvement, had been borrowed out of money already in circulation. Therefore the idea of getting rich by exporting more than we import, is altogether preposterous, unless we can get foreigners to pay us interest on the balance; but we have more cause to borrow than lend.

All classes are to be fed, clothed and provided for;

but it does not follow that the whole time of a whole people is to be employed for that purpose. Tariff or no tariff, a part of our time can be and is spared, in which to make improvements; but, if we can exchange the produce of forty days' labor in agriculture, for as much of foreign goods as we would have to give forty-five days' labor for to domestic manufacturers, we save the one-ninth part of our time for other purposes; or what would amount to the same thing, the one-ninth part of the people might be engaged all the time in making improvements, which would be adding capital to the nation. The true policy with nations, as with individuals, is to sell where they can get the best price, and buy where they can buy cheapest. I believe it to be an error of opinion, that for the want of a higher tariff, excessive importations are made: I attribute it to an unstable currency. Our measure of value is too much like what a measure of length or quantity would be, if made of India rubber: it is altered too easily at will. If prices are artificially inflated, excessive importations will naturally be made from countries where prices are lower. Domestic manufacturers, in such cases, cannot compete with the foreign; and it is said to be for the want of a higher tariff. A higher tariff laid when excessive importations are making, would no doubt check them for a season; but let it be considered that under a tariff system the country can bear more currency than if there was no tariff, because a tariff for a limited time protects money from exportation, by keeping out foreign goods which would create a demand for it; and the amount of currency may and will be increased, until prices are so high that we can import foreign goods over the tariff, pay the duties, and still have a profit. A tariff, then, after a limited time, is no protection at all, unless we go on increasing it ad infinitum, which would never do. It would be a protection, if, under its operation, prices did not rise. If it was a protection, it would still be bad policy. Government should undertake to effect nothing more than to start manufactures into existence, where the condition of the country will warrant their continuance, without taxing the people to support them; and that, in my opinion, can be effected in no way so well as by offering a direct bounty, such as now with propriety might be given for a limited time for the production of silk.

Many people think, that without a tariff, foreigners would sell to us of their wares, and might not be willing to take our produce in exchange. If they did give us something for nothing, we should certainly make more out of them without a tariff than with; if they drew specie, it would not last always; if they refused to trade with us, they would lose most, and it would be the most efficient tariff the American System men could ask for. In the natural course of things, a nation's exports will be equal to its imports, and vice versa; and it is right that it should be so. If this nation's exports are less than its imports, it is for two reasons: One is because of the emigration to this country, which brings wealth in its train to the amount of many millions annually. Another great cause of our importing more than we export of late, may be found in the fact that the States and corporations are loaning money in Europe by the millions, for banking purposes and works of internal improvement. These loans, I believe, generally come to this country in the shape of foreign goods, the avails of which are paid here to the borrowers. For that portion of our imports we export nothing but a mortgage on posterity; and it gives to the country a seeming prosperity, similar to what a man evinces when he is sporting on borrowed money, and like to what some inebriates feel when they are *pretty considerably well corned*; and I fear that with some States, the languor of depression will come in the shape of feeling in the pockets for direct taxes to pay the interest. If the loans came to this country in gold and silver, it would inflate prices by putting it in circulation—that is certain: If they came in goods, prices may be raised to the same pitch by an increase of currency, without turning the exchanges against us, and the banks have not been slow in filling up the vacuum. The consequence of the States borrowing so much foreign capital in a short time, has been an increase in the cost of their improvements; because producers are fewer, provisions higher, and labor scarce and dear. It would no doubt have been cheaper for them to have constructed their works more gradually, and to have raised their money at home, even though they had been obliged to pay over seven per cent interest. By borrowing a portion of the money already in circulation, the prices of provisions and labor would have remained nearly stationary, instead of rising to the enormous height which they have of late years, in an expenditure of thirty millions of dollars a year: More than one-fourth the amount need not have been out of circulation at any one time, and we should have had the satisfaction of owing it to our own citizens instead of foreigners, besides preserving us from those habits of extravagance invariably engendered by an artificial inflation of prices; which habits must be changed, I am thinking, before we pay off both principal and interest.

It may seem strange and paradoxical that the States borrowing too much money in England of late should be the cause of the present scarcity of money here, when the natural tendency is to make it more plentiful. If we may credit late English papers, much of the proceeds of the sales of American stocks has of late been shipped to the Continent, to pay the debts due by American merchants there. The specie was drawn from the Bank of England, until the managers found it necessary to curtail discounts to such a degree as to compel English merchants to call on their American debtors for real

money, in payment for a portion of the goods imported under the presumption that they would be paid for by increased sales of States stocks. It is also said that English warehouses are full of goods designed for the American market, which will be sent here and sold for what they will fetch, to the great injury of American manufacturers.

You will perceive that I consider the tariff a deceptive thing; getting rich by the balance of trade, an illusion; and borrowing so much money in Europe, very impolitic and unstatesmanlike, to say the least of it. It is not high prices at home that makes a nation rich; but it is the facility with which men and communities of men can exchange the products of their labor for articles which they stand in need of, under a scale of steady prices which admit of calculation and foresight in business.

With great respect, I remain your friend,

JESSE RYDER.

Best Season for Destroying Bushes.

Greene Co. Va. July 15th, 1839.

J. BUEL, Esq.—Sir,—In the last number of the Cultivator, I see, by you, an answer to a query of the most effectual time to cut bushes, sprouts, timber, &c. to kill them, and whether or not the moon has any influence as to time. You seem to think that the moon has; consequently recommend the old moon in August, from popular opinion and your own experience. And you give further as a reason, that at that time there is less sap in circulation than in the other summer months; and farther, the intense heat of the season tends to destroy vitality. As to the heat, that is a good reason, and I would add dryness of the season generally in August, for I have frequently observed large trees in the forest, and bushes and sprouts around stumps in arable land die at that time. But the reason given on account of there being less sap, might be carried farther, and say the winter months, when there was neither sap in the body nor root of the tree apparently, would be the most effectual time to kill them. And as to the moon, ten years experience in farming, from the result of the most inquisitive inquiry, upon what is called the best signs in the moon for sowing, planting, &c. and having made experiments in every instance in farming, has conclusively satisfied me that the farmer has no farther use for the moon than to give him light. If there is any influence in the moon upon sowing, planting, &c. it is not uniform, for upon a certain sign in the moon some years a crop may succeed well, and upon the same sign in other years prove a failure. I will mention a circumstance which, perhaps, has crossed your observation, of two learned men, (their names do not occur to me,) one in England and the other in France, making, by agreement, at the same time, observations upon the influence of the moon on vegetation, and the result of their experiments proved differently. Upon my farm I found a great many locust, and being anxious to exterminate the most of them, I was told, for the most effectual way, to skin them in the old of the moon in August. To one thicket, at that time, I done so; but to my disappointment sprouts put up as thick as if they had been cut down in winter or spring, but they did not grow as vigorously, which I ascribed to heat, dryness, and the short time they had to grow in. I was then told to skin as soon as the bark would split, (which is in May,) which I have since done, and where duly observed I have never had a single sprout to put up, and the trees would tumble down in a short time.

Sir, the disposition this deserves you are the judge of.

Your ob't serv't,

T. G. G.

P. S. The crop of wheat in this section I do not think an average one, but better than has been for several years, though but little sown. Oats and grass very heavy. Clover, last spring's sowing, failed, owing to the drought in the spring. Corn very promising at this time. G.

On Dwelling Houses.

New-Preston, Litchfield Co. Ct. Oct. 7, 1839.

J. BUEL.—In your valuable paper the Cultivator, in one of its numbers last spring, I think, a writer set forth the dampness and consequent unpleasant and unhealthy nature of dwelling houses constructed in the country of stone, to be such that no wise or judicious person ought to think of building the walls of a dwelling house with that material. I think a fair and full experiment, such as myself and others have had in this vicinity, is worthy to be contrasted with the above denunciation of what I consider the best building material in very many parts of our country.

In the summer of 1831, I erected a stone dwelling house on moist land, having water running from the cellar at all times in wet seasons. I can say I think, with entire truth, that my house, in all parts and respects, is as dry as any other house, in its cupboards, closets and rooms, except one small lodging chamber, and this may not have shared in the general protection. When the wash-boards were nailed in their places, I purposed to have them completely filled with mortar; and in all places exposed to be made the gateway of rats, the mortar was well filled with flat stones. This has had but little effect in stopping mice, but I think the effect has been good in keeping off rats. My house is furred with one and a quarter inch stuff, and lathed throughout; and this, stopping the damp air from passing into my rooms and behind the walls, makes my house dry and pleasant. In all changes and sudden thaws, my house is as pleasant as any constructed with wood in the country. Eight years residence in my house has

never led me to regret that I built of stone; and whenever the great materials are near at hand, stone, sand and lime, I would say, use them in preference to brick or wood; but be careful in all your buildings to stop the damp air from passing from the cellar behind the walls, or in any other way into the rooms. Framed houses have sills and timbers on which the floors and wash-boards are mostly placed, entirely excluding the cellar air, which may be the great reason why they are more dry than stone or brick. My house is 61 feet by 30-31 feet, the kitchen and wash-room having a recess in front of 6 feet. By close calculation, my house cost \$150 more than wood, being two stories high and ten feet between joints. I transported my pine lumber forty miles. Respectfully yours,

SAMUEL AVERILL.

Berkshire Hogs.

Black Locust Grove, Mo. Sept. 21, 1839.

Hon. J. BUEL—Dear Sir—Will you request your neighbor, C. N. Bement, to inform us, what is the general or common color of full bred Berkshire pigs. We have some in this country, brought from Ohio, which are black, claiming to be full blood; some, said to come from New-York, which are white, said to be full blood; the owner of which says there are no genuine Berkshires that are black. Both kinds that are here are good hogs; the white ones have heavy ears, the black ones small ears. Now, our desire is not to be imposed on as to the blood; if we have the genuine Berkshire, we wish to know it; if not, we want them. An answer is requested. Respectfully yours,

A. H. F. PAYNE.

In compliance with the above request, I have extracted from the "Complete Grazier," describing them as they were exhibited in 1807, by the late Sir William Curtis, at the cattle show of Lord Somerville, where they attracted universal admiration.

"They were of the Berkshire breed; the specific characters of which are a reddish color, with brown or black spots; sides very broad; body thick, close, and well formed; short legs; the head well placed, and the ears large, and generally standing forward, sometimes pendant over their eyes. Another distinctive mark of this breed is, that the best are without bristles; their hair is long and curly; and from the rough appearance, seems to indicate coarse skin and flesh; but, in fact, both are fine, and the bacon is of very superior quality. The hogs arrive at a very large size, and have been reared even to the weight of 113 stone, (904 lbs.)"

From "Loudon's Encyclopedia of Agriculture," published in 1831, I extract the following description of the Berkshire pigs at that time.

"The Berkshire breed is distinguished by being in general, of a tawney, white or reddish color; spotted with black; large ears, hanging over the eyes; thick, close, and well made in the body; legs short; small in the bone; having a disposition to fatten quickly; and when well fed, the flesh is fine. Berkshire has long been famous for its breed of swine, which, as it now stands, is in the third class, in point of size, excellent in all respects, but particularly as a cross for heavy, slow-feeding sorts. It has extended itself from the district from which it takes its name over most parts of the island; is the sort mostly fattened at the distilleries; feeds to a great weight; is good for either pork or bacon; and is supposed by many as the most hardy, both in respect to their nature and the food on which they are fed."

The Berkshire pigs, imported by S. Hawes, Esq. in 1832, of which I came in possession in 1835, differ, in some respects, from either of the foregoing descriptions; and they are the ones from which have originated pretty much all the Berkshires now generally introduced in almost every section of this continent. The color is invariably black with white spots on the body; feet sometimes tipped with white; and some white on the face and nose. Short and smooth coats; fine skinned; some of them have smaller heads and ears than those described above; long, round and deep in the body; short in the leg; broad on the hips and loin; large and full in hind quarters; hams well let down; and light in the bone and offal. The sows are good breeders and nurses, producing two litters in the year, from eight to fifteen at a litter.

I never have seen one of the full bred Berkshires entirely black; in fact, I should look with a very suspicious eye on one without some white, let it come from where it would.

They may, with propriety, be termed "graziers," for they will feed and do well on grass alone. After the pigs are taken from the sows in the spring, I cause rings to be put in their noses, and turn them out to pasture, without any other food, until they litter again in the fall. This is not only a great saving of expense, but saves considerable time, which can be more profitably employed in the field.

I have now an imported Berkshire boar, from a different strain, with more bone and size, which I intend breeding to this fall, and hope to have a good supply of pigs for sale in the coming spring. He is lighter colored than the former importations; was one year old last June, and measures 5 feet and 6 inches from his nose to the root of his tail, and around his girth 4 feet and 4 inches, in ordinary condition. Very small head and ears; legs short and of sufficient size to sustain great weight when fattened. Yours respectfully,

CALEB N. BEMENT.

Three Hills Farm, Nov. 12th, 1839.

A Hint to the Publisher and Friends of the Cultivator.

Lake C. H. Ia. Oct. 20th, 1839.

Hon. J. BUEL—Dear Sir—I have adopted a plan with the Prospectus of the seventh volume, that promises much usefulness. You offer agents from 10 to 25 per cent upon subscriptions obtained. All wrong—wrong to offer a greater premium for a large number than a small one. One may exert himself more in one place to obtain ten subscribers than another would in another place to obtain a hundred. But more than all, it is wrong to offer any per cent. What? am I to believe that the spirit of agricultural improvement is so low, that the friends of such a paper as the Cultivator are so much more beset with the love of money than the good cause that we are engaged in, that they must be paid for asking their neighbors to read and be enlightened? I will not believe it. And as for your "per cent," for one, I will have none of it. But I tell you what I will do, since you can afford to pay it, I will take it, and PAY THE POSTAGE ON THE VOLUME WITH IT. Thus, I endorsed upon the prospectus, as follows:

"TAKE NOTICE—As I charge no commission, one dollar in advance will pay the subscription, and the postage, upon this volume of the Cultivator."

Are there not hundreds who are as willing as I am to help the good cause along, and "charge no commission?" I assume to answer in the affirmative. The "hint," then, that I would make to you is, that you should say to every person in whose hands a prospectus may come, whether they obtain a greater or less number of subscribers, to take enough out to pay the postage. And the "hint" that I wish to give the friends of the Cultivator is, to practice upon my "no commission" principle. Thousands will take the paper upon these terms, that would not take it and pay the postage, extra. Try it, I pray you; I am sure I cannot be mistaken. To every gratuitous agent who obtains such a number of subscribers that you can afford him a gratuitous paper, no doubt he will accept it with pleasure. But the grand object must not be lost sight of by the conductor and friends of the paper, that is, to increase the circulation as far as possible, and no better plan than the one I have adopted, I believe can be adopted.

I remain, as usual, your friend, &c.

SOLON ROBINSON.

Advertising.

Judge Warner has my thanks for his kindness in giving publicity to the preventive he has so successfully used for bloody murrain; I have used ashes for horses and hogs all my life, but not for cattle; I am now trying it, and will, God willing, try it effectually.

You have deprived me of an argument that I have hitherto used in favor of your valuable paper, in order to get subscribers; and that was, that it was indeed and in truth what it purported to be, not an advertising sheet, but devoted to the cultivation of the mind and soil. Now, sir, we wish to bind our numbers as a book of future reference, and we have no wish to bind a bundle of advertisements; besides, the advertisement of "A Splendid Country Seat in the Highlands, on the Hudson River," and such like, must be of little importance to a vast majority of your readers. I would not, sir, by any means be considered as marking out the course of the Cultivator or its able editor; but instead of one page of each number being nearly filled with advertisements, would it not be better for those wishing it to pay for a quarterly extra sheet, to be styled the "Cultivator Advertiser?" Indeed, it seems to me they might very well afford it, seeing that your valuable paper is read in nearly all the States and Territories of the Union, and in the British Provinces of North America.

The above is, sir, submitted to the consideration of your superior judgment, and hope it will be received in the same spirit that it is written, and from the sole motive of benefitting mankind in general, and your readers in particular, by the perusal of "many valuable essays from other periodicals," instead of such advertisements as the above. Yours most respectfully,

AUGUSTUS H. F. PAYNE.

Black Locust Grove, Sept. 21, 1839.

We would inform our correspondent, that in order to remedy the evil complained of above, in our next volume we intend to dispense with advertisements, and probably print a semi-annual or quarterly advertising sheet, which may be done with as our subscribers think proper, providing sufficient encouragement is given to warrant us in so doing.—
Cond.

On Hay Making.

Clinton College, 17th Sept. 1839.

Hon. J. BUEL—Dear Sir—In the August number of the inestimable Cultivator for the present year, p. 121, I see a revolving horse-rake recommended by Mr. Dexter. Of the advantages of this rake I am not informed, such improvements in the implements of husbandry not having yet reached this western country; but if my view be correct, of the best and most economical mode of making hay, we have, perhaps, no need of a rake of any kind. I therefore write for information, and am willing at the same time to benefit others as far as I can. I shall detail briefly my plan, with the hope that if any of your numerous readers have a better, they will favor me and the public with theirs, through the Cultivator. I have travelled some, and read a little, for agricultural information, and have practised, as circumstances would allow, upon those plans which my oppor-

tunities have taught me are the best. Hay making has been, with me, a subject of close attention: and my plan, as taught me in Kentucky and elsewhere, and confirmed by experience, is this: As fast as the grass is cut, (when there is no dew or moisture on it,) as many hands follow the scythes, as can keep close up to the scythes, in *shocking* or *cocking the hay in its perfectly green state*. If the sun does not shine on or will the hay at all, so much the better, and for that reason it must be shocked as fast as it is cut. The shocks are made about six feet high and six feet wide at the base, and tapering like a cone to the top, and then dragged down with the fork to make them turn rain. All this can be speedily done with the hay fork, one hand being able to gather and shock three acres, or six tons, per day. The rake spoken of may do better than this, but I doubt it, and should like for Mr. Dexter, or some one else, to specify the amount a hand can rake and shock per day with that instrument.

As you remark, I never spread the hay, but proceed to shock after the scythe as fast as it is cut, by following along the swath, and with a fork, *rolling* the hay till I get as much as I can raise on the fork, when I pitch it on the shock. Thus I continue to carry as many swaths to a row of shocks as will complete them. I always roll *towards* the shocks to save walking with the hay, which is laborious. This plan of collecting the hay will be more approved, when you understand *an improvement I have made in the mode of cutting hay*. I do not mow with the scythe, as is common, but I *cradle the hay*, (as will be explained,) which throws all the grass into swaths double as large as those made in the usual way, and hence the hay is already collected into sorts of winrows by the cradle, so that the rake is not needed.

For cutting hay, make a cradle with two fingers only. Let the one nearest the scythe be 7 inches shorter than the blade, and so arranged as to let its point nearly touch the blade; let the second finger be 7 inches shorter than the former, and arranged so that its point may come in one inch of touching the first finger, and you are now ready for business. In cradling, *do not mow, but give the usual stroke of cradling grain*, only take care to set your cradle in no further than you can carry out with ease. In cradling grain close to the ground, you have to squat a little in making the stroke, proceed the same way in grass, and you shave it to the ground.

I know that the farmers of the old states, who have made hay all their lives, will laugh at this plan, and particularly at the idea of a Tennessean proposing to show them something new in cutting hay. They will argue, that a cradle will be too heavy, and that it will tangle, and cannot work in dense hay. Let them try it. The denser the grass the less you must cut at a stroke, and your cradle will go easily through, thick and thin. But the great advantages of the improvement remain to be told. They are no less than three. 1st. In this way you cut twice as much in a swath as in the common way of mowing, and then the grass is *all* collected into a winrow as you proceed, and not left scattered as the scythe would do it. Thus the labor of raking is saved, and less of the hay is left on the ground at the end of the process. Besides, the cradle cuts it perfectly clean under the swath, which few hands will do with the mowing scythe.

2d. The process is less laborious than mowing. No man who ever cradled hay would mow, if you gave him his choice as to the mode of cutting.

3d. *A hand can cut double as much in the day as he can do with the mowing scythe*. If a hand can mow one acre per day, he will cradle two acres of the same grass with less labor.

I have tried this plan but one season, having cradled about fifty acres of timothy alone, and of clover and timothy mixed. The cradle does so well in these kinds of grass, that I expect to have no use for mowing scythes hereafter in making hay, unless the plan should fail in herdsgrass or redtop. I have not tried it in that grass, as I have grazed my herdsgrass this year, instead of cutting it for hay. I wish my brother farmers to try this plan effectually, with a strong cradle blade, and let me hear from them next summer, in the Cultivator.

But to return to the process of curing hay. Having shocked as before described, (I mean timothy or herdsgrass,) I let it remain for six days, when I run my hand to the centre of each shock; if I find them still cool, I do not disturb them, but if any are warm, I put the left hand on the top of the shock, while the right is thrust to the centre, and turn the upper half down to the ground, so carefully as not to disturb its form, and leave it inverted. In an hour or two, the whole is cool, and I then take hold in the same manner and place it back on the shock as it was before. Not more than one shock in twenty will ever get warm at all, (most of them curing fine and green without heating,) and none will need turning down more than once. In this way, your hay has three signal advantages over that made by spreading and curing in the sun. 1st. It costs not more than half the labor of spreading and shocking repeatedly till dry. 2d. You run no risk of getting any injured or lost by rain. 3d. You get more hay both by weight and measure, and the quality of it is far better than can be made in the sunshine and open air, both of which dissipate much of the nutritious virtue of the hay. Yes, much more of the virtue of most of the products of the farm is lost by exposure to the air, than is generally believed. You have to be particular to cut and shock when there is no dew or rain on the grass, (for if wet it will heat)—examine it once in six days—and be sure to let it be well cured before you stack it,

and you cannot fail to make the best of hay, in any season, without injury or loss.

When I make clover hay, I follow the foregoing plan in all respects, till it is shocked. Then I haul and stack it perfectly green, in large stacks, taking care to *soil* and *tramp it well* while stacking. I use about as much salt as the cattle would require while eating the hay, say 50 lbs to a stack 16 feet high and 14 feet at the base. In five or six days the stack becomes hot and smokes profusely, but in two or three weeks it will have "gone through the sweat," and be found perfectly dry and sweet. The less wilted before stacked, the less it heats and the better the hay it makes. By this process the hay is of a dark green color, and all kinds of stock will eat it greedily and thrive upon it. It shrinks but little in curing and loses no leaves, and is in all respects better for cattle, horses or sheep, than clover cured in the open air.

Respectfully,

FRANCIS H. GORDON.

P. S. In your March number, page 13, Mr. Brewer recommends Robert Rittenhouse & Co's Patent Clover machine. From his letter, I admire Mr. B. as a farmer, and should be glad to learn from him or yourself,

1st. What amount of seed the machine will clean per day?

2d. Is it worked by horse or human power?

3d. How many hands are required to attend it?

4th. Does it get all the seed out of the chaff?

5th. What is its weight? how large or what space does it occupy?

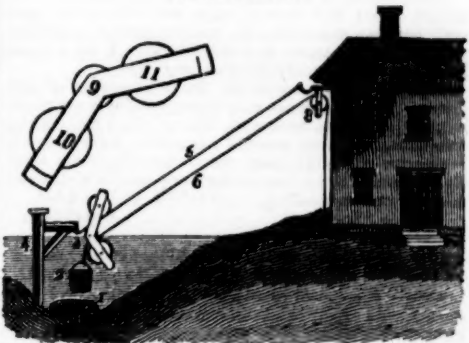
6th. Can a common farmer keep it in order, or does it require a workman?

7th. Can one be had in Philadelphia, Baltimore or New-York city, and to whom should I apply.

Last year I made one hundred bushels of clover seed, but the process of tramping with horses is so tedious and so disagreeable, that I feel discouraged, and should be pleased to learn a better plan; I therefore shall be happy to learn the particulars of this machine.

Plan for Drawing Water.

[Fig. No. 45.]



Yankee Chapel, Posey Co. Ia. Sept. 16, 1839.

MR. BUEL—Sir—If you think the within plan for drawing water of any public importance, you would confer a favor by publishing it in the Cultivator, as there are many situations where it could be used to advantage, and its cost would be less than a pump, and not so likely to be rendered useless in frosty weather; and its being above ground renders it more easily repaired, when out of order, than either pumps or pipes; and may be used either in a well or spring, brook or river, and the fact that a person may stand within doors and bring the water is an agreeable circumstance in stormy weather. The above plan was suggested to me by an intelligent Frenchman, who informed me that he saw it in use in Naples. The figure 1 denotes the well or water; 2 the bucket; 3 the sheth block, which should be of cast iron, with 3 sheths or wheels in it; those at the ends, marked 10 and 11, should be 2 1/2 or 3 inches diameter; the one in the centre, marked 9, about 2 inches diameter; 4 is a post, which should be very firm, and an arm in it, to which a strong wire is made fast, and so arranged as to be tightened or strained by a screw in the arm of the post; the wire, marked 5, is made fast at the other end immediately over the spot where the water is to be brought; No. 6 is a cord made fast at one end to the bucket, passed through the block and over the wheel No. 10, and then over a wheel in a block No. 8, which block is made fast near the point where the bucket is to stop; then the end or fall of the cord may be put to a windlass or drawn by hand; the wheel No. 11 runs on top of the wire, and that marked 9 runs under the wire; there should be a small notch directly over the spot where the bucket is to stop, into which the wheel No. 11 drops, and renders it stationary, while the bucket descends; and a spring or lever is brought to act on the wheel No. 11, by pulling a cord for the purpose of raising it out of the notch, when it is desired to have the bucket return to the well or water, which it will immediately do the moment the wheel No. 11 is lifted out of the notch, when it will continue to descend until it comes in contact with a projection at the end of the wire, over the well, when it becomes stationary, and the cord gently passes over the wheel No. 10, and lets the bucket fill; then upon drawing the cord until the bucket comes up and in contact with the lower end of the block, all begins to ascend the wire to the desired spot; the block should be bent as shown by figure 7, as the wheels will work much better than if it was

straight; and the surface of the wheels should be fluted or hollow, so as to cause them to run more truly on the wire, and under the wire and cord.

Also I send you a sample of grass, from the meadow of Mr. John B. Wallace of this place, which I think should be cultivated more generally, as it is a very hardy grass, and is nearly all leaf, the stem, on which the seed is formed, being so short as seldom to be cut by the scythe when mowing, and which produces more hay, and of a better quality, than any I ever saw. This grass is indigenous to this country; its merits, however, have not been fairly tested, though so far appearances are favorable. The fact of its having no straw I consider to be of importance, as the hay would be much finer, and I think more nutritious than where a large portion of the mass is stem or straw. Mr. W. is only engaged in experimenting on it as yet, though I shall feel much disappointed if it does not do better than any other grass now cultivated for hay. This spire which I send you I took no pains in selecting, though it measured 4 feet 8 inches. Yours, &c.

MICHAEL W. ROWE.

The Mad Itch.

Washington Co. Ia. October 21st, 1839.

DEAR SIR—There is a complaint raging to some extent among the cattle in this country, called the "Mad Itch," which appears to be incurable, and if you or any of your numerous subscribers could give information how to cure it, you would confer a great benefit to the public.

Not having seen any account of it in the Cultivator, I will describe it as near as I can. It takes the cattle under an itching on the nose or around the horns; they then commence rubbing and throwing their heads and frothing at the mouth, and in about twenty-four hours they are dead. If you or any of your subscribers know any cure or preventive, I want it published in the Cultivator.

HERVEY DEMY.

To Cure the Fowls in Cattle—Rohan Potatoes.

Priceville, Wayne co. Pa.

Take corrosive sublimate, pound and dissolve it in spirits, water will answer, pare and cleanse the part well between the claws, or where affected, apply the mixture one or twice is a certain cure; I have never known it fail in twenty years' experience.

From one potato which Mr. Rains purchased of you for me last fall, I raised four bushels; they were planted four feet apart each way, one eye in a hill, thirty-two hills—not much manure was used. I am now selling them, the large ones, for twenty-five cents each. Profit enough to pay my subscription for the Cultivator since its commencement. JACOB W. WELSH,

Manchester.

Double and Single Flowers.

Manlius, Oct. 25th, 1839.

"We invite, on all occasions, liberal criticism. It is the collision of flint and steel that elicits light."—*Con. Cul.*

J. BUEL—Dear Sir—You will observe, at page 123 of the present vol. of the Cultivator, in answer to questions propounded by Phineas Pratt, speaking of deteriorating plants, flowers and seeds, "Hence florists destroy single and imperfect flowers, lest they should fecundate and destroy the seed of double flowers." I believe, sir, botanists never select double flowers for analysis because they are imperfect. Their stamens become changed to petals, and frequently the pistils too by cultivation; their natural character is often destroyed: it is, therefore, difficult to determine by analyzing a double flower how many stamens or pistils belong to it in its natural state; consequently no true class and order can be given, although the beauty of flowers may be increased by cultivation. Yet their relative beauty, as subservient to scientific illustration, is certainly destroyed by the labor of the florist. Flowers in their natural state, unassisted by cultivation, are usually single, and are considered perfect by botanists. They should not, therefore, be destroyed, or set down as imperfect, because they are single. Yours, &c. respectfully.

FARMER C.

The Tree Corn.

Manlius, Oct. 25th, 1839.

J. BUEL—Sir—Having of late, in different prints, observed many harsh epithets used against Grant Thorburn and his "tree hill corn," I take the liberty of stating a few facts in relation thereto. Last spring a friend of mine gave me 30 grains of the celebrated tree hill corn purchased at Thorburn's at 25 cents per ear. I gave away 3 grains and 2 did not vegetate; which left me 25 grains to grow. These I planted on the 13th of May, in my garden; they grew to the height of from 8 to 10 feet each. It was hoed three times. On the 2d of Oct. I harvested, of sound corn, 62 ears, with some 10 and some 12 rows each; 2 ears were 10 inches in length; 5 others of 9 inches; 12 others of 8 inches; and the remainder were from 5 to 7 inches in length. Perhaps I should have come at the product more exactly had I shelled and weighed it; but as it is, enough is set forth to prove it a great yield, and the shrewd old Scott should not be yeelped the worst of beings by the good people of this country, even if he has sold them corn at 25 cents the ear. "Look before you leap, and never cry for broken bones."

FARMER C.

P. S. From 5 Rohans, of middle size, I raised over

three bushels; they did not get quite ripe; they were planted 22d of May, and dug 3d of Oct.

On Propagating the Peach.

Kipton, (Vt.) Sept. 30, 1839.

Hon. JESSE BUEL—Dear Sir—In the Cultivator for Oct. 1838, page 133, I observe the following directions are given for raising peach trees: "The stones may be buried in the ground during the winter, and those which are not cracked by the frost may be broken before they are planted."

I pursued this method for several years, and not having been very successful, I began to suspect that, instead of aiding nature in her simple operations, by the application of frost, I had counteracted her efforts, and concluded to try the application of heat and moisture, instead of frost. Accordingly, I took a quantity of peach, cherry and plum stones, with a number of walnuts and butternuts, or, in the language of the south and west, hickory nuts, and white walnuts, wrapped them in a cloth, that I might more conveniently take them out of the ground in the spring, and buried them in a loose muck under a fence, where they were covered with a snow-drift during the winter. When I took them out in the spring the sprouts had perforated the cloth in all directions. When I opened the cloth I found the stones, as well as the walnuts and butternuts, all opened, and the young plants disengaged from them, which I placed in the ground, and they all grew. This was about forty years ago, since which I have always pursued the same method, omitting the cloth; and have generally found the stones opened in the spring; always, I have believed, when they were put in the ground before they had become dry, and were kept sufficiently warm during the winter; and those which were not opened in the spring being planted generally came up.

That either frost or the hammer is necessary to open peach stones and cause them to vegetate, is certainly an error; but since frost will not prevent, but only retard vegetation in this case, the correction of the error may not be of sufficient importance to find a place in the Cultivator; of this you will judge.

Since I have a small space left, I will fill it with a few remarks in relation to raising potatoes from the seed. I believe that the seeds are generally taken from the balls in the fall, dried and planted in the spring; but I have found that if the balls are buried in the cellar when they are taken from the vines, and the seeds planted in the spring, they will come up sooner, and the potatoes will be larger in the fall.

DANIEL CHIPMAN.

Query.

Near Rockingham, 22d Sept. 1839.

J. BUEL—Sir—A few days ago six of my cattle were taken down with a disease caused by eating too much green corn, having broken through a very bad sod fence. Yesterday three more were taken in the same way. I could find no remedy for such a disease in any of the cattle books, and was totally at a loss what to do. An ox of a neighbor was taken down at the same time; he gave him about a half a gallon of soft soap and lard. His ox died. Fortunately I had no soap, and could give no such dose. Some of mine I bled in the mouth, for others I did nothing. They are all getting better but one, which I shall probably lose.

The object of this letter is to learn from you, or some of your correspondents, what remedy should be applied in such a case. I do not mean a quack remedy, soft soap for instance, but some remedy based on medical principles. I should have added, that my cattle were taken with a violent purging, attended with extreme debility, and a dullness amounting in some to utter insensibility. Yours, truly,

JAS. GRANT.

Doing Good to Others.

Chatham, 2d Oct. 1839.

JESSE BUEL, Esq.—Dear Sir—"Recollect you have it in your power to do a great deal of good!" This was your last and benevolent expression on parting from you a few weeks since.

It has been my rule, occasionally, when I observed worthy and energetic overseers, to subscribe for some agricultural work and send them by way of encouragement, and it has not only been the means of exciting their energies still further, but inclines them to habits of reading, and its results are gratifying to me, and beneficial to them. So also, I have subscribed for some young and industrious farmers, without letting them know from whence it came, and have invariably found it to result in good, not only to them but to a circle immediately around them; in a few years after beets and ruta baga is a part of their crops, liming and manuring indispensable; and thus your Cultivator becomes the necessary adjunct, and I find it circulating in neighborhoods where otherwise it would not have found its way probably for years. And thus I try to fulfil your excellent admonition, although in a small way, doing some good to you and the cause of agriculture, (to which we are both enthusiastically devoted,) and more, perhaps, to others. How many are there, among the great and the wealthy, that might do likewise; be the means of disseminating the true science of agriculture, and of advancing the noble cause of agricultural education throughout our land, and never feel the loss of a few paltry dollars.

N. P. C.

A skillful agriculture will constitute one of the mightiest bulwarks of which civil liberty can boast.

EXTRACTS.

The Life of the Husbandman.

"I am a true laborer. I can earn that I eat, get what I wear, owe no man hate, envy no man's happiness: glad of other men's good, content with my farm, and the greatest of my pride is to see my ewes graze and my lambs suck."—SHAKESPEARE.

We have come to the conclusion, that nature's truest nobleman is the man who earns his bread by the sweat of his face, upon his own bought and paid for plantation. An independent Farmer may stand upon his housetop, and say to himself as Selkirk did:

"I am monarch of all I survey
My right there is none to dispute;
From the centre all round to the sea,
I am lord of the fowl and the brute."

He is truly a monarch—with a landed title more secure than that of feudal Lord or Baron,—more easily protected and preserved, not by deeds of valor, and through the shedding of blood, but by the lawful labor of the hands. His house is his castle, his acres are his dominions. His gardens are his parks, his grass plots his lawns, and his forests his groves. His cattle, sheep and poultry are subjects, and he becomes, at pleasure, either the executioner or the multiplier of such subjects. Tell us if the King upon his throne has more power worth possessing. His happiness we know is less, as he increases his toils, cares and sorrows in proportion as the cultivator of the soil diminishes his.

In the spring time he sows, in the autumn he reaps. Providence has assured him that spring time and harvest shall not fail, and he has the assurance of the Giver of every good and perfect gift, that as he sows so shall he reap. His grounds are watered in the season of drought, with the rains and dews of Heaven, and in the damp season the sun shines to cheer, invigorate, and give promise to his labors. The severer tasks of the summer are succeeded by the lighter labors of the winter. As we have said in the words of Will Shakespeare, he "earns that he eats, and gets what he wears," and his philosophy is that of the shepherd who said that "good pastures make fat sheep." He may say truly, and with an honest pride—

"I eat my own lamb,
My chickens and ham,
I shear my own fleece and I wear it."

What could a man want more; and how can a farmer, capable of enjoying life, possessed of his farm house, his farm, and his necessary implements of husbandry, ever sigh for a residence within the enclosures of a city,—choosing bricks and mortar, for the elbow room of a spacious farm house, the smoke and dust of the town for the village, the three or four story brick house for the granary or the haycock,—the purest air of heaven for the atmosphere of a thousand smokey houses, and ten thousand unwholesome breaths? How could a farmer make such a choice as this? We would pause for a reply, did we not know that the only answer which could be devised, after a long study, would be the unsatisfactory one, that something better was anticipated only,—for it would be a miracle almost, for a man to find himself happier or in better circumstances after a change of residence from the country to the city.—No,—no. The true Elysium,—the real Paradise on earth, is the country,—the green, fruitful, beautiful country. The city for the taskmaster and his hard-working servant; but the country for the man who wishes for health and leisure,—contentment and a long life.

The ancient Romans, venerated the plough, and in the earliest, purest time of the republic, the greatest praise which could be given to an illustrious character, was a judicious and industrious husbandman.—*Portland Advertiser.*

The American Farmer.

The following beautiful description of our most worthy and happy class of citizens, is from the address of the Hon. Mr. Rowan of Kentucky, to the citizens of Louisville. If any one would inquire why farmers are more worthy than any other class, this description will answer the question. They follow that profession which is most essential to the public good, and which is the foundation and support of all other useful employments; and the situation of farmers leads them to a higher state of moral worth than any other class will attain.—*Yankee Farmer.*

"Who is there among us that beholds the condition of our farmers, and does not exult in the consciousness that he is an American citizen, and pant to superadd the character of a farmer? The house of the farmer is the abode of the virtuous. It is a school in which lessons of practical wisdom are taught. It is a temple in which the precepts of our holy religion are inculcated. It is the castle of sovereignty, for it is owned by its occupant and he is a freeman. It is the residence of peace, order, harmony, and happiness. Patriotism and piety unite in consecrating the place, and in suffusing every countenance with their union. Indeed, what condition in life is so likely to produce that patriotism which will stand the country in stead upon emergencies, or that piety which will afford solace in extremity, as that of the farmer? He occupies a constant, intimate, and sensible relationship with Heaven. His mind is subdued with a love of order, by constantly beholding that which prevails around him. The regular successions of the seasons, of day and night, and of seed time and harvest, admonish him to the observance of regularity and order

in all his conduct. He perceives that the sun and moon perform their circuits without loitering on the way; and learns from them that industry is required at his hands. He looks to Heaven through its rains and dews, for the reward of his labors in the abundance of his crops.—He makes the sacred volume of revelation the man of his council, and the source of his consolation. He unites with his wife and children in tones of supplication and strains of praise around the family altar on the morning and evening of each day. He acknowledges no sovereign but Heaven and the people; he bows with appropriate reverence to the will of each, and exults in the freedom of his own, for his homage is a free-will offering claimed at his hand by the convictions of his reason. His affections are conducted by his judgment and not by his fears, in his devotions. Matron chastity, and infantile innocence sweeten and religion hallows the atmosphere of his home, and render it irresistibly attractive. He loves his country because the farm and the domicile of which he is the proprietor, and with which his affections are identified, are a part of that country. His patriotism is an essential part of his conscious identity. Connected by his affections with the soil, and by his piety with heaven, it partakes of the stability of the former, and the purity of the latter. It inspires him with holy enthusiasm in the cause of his country, when its honor or its safety is concerned. It is electric, and strikes every contiguous bosom till it pervades the community."

How to Preserve Tomatoes for Winter.

Among other improvements in Horticulture, I have been gratified to observe the increased cultivation of the tomato. Believing this to be a most healthy vegetable, I send you an account of the manner in which, universally in Asia Minor, they are preserved for use during the winter.

Cut the tomatoes in two when quite ripe, and sprinkle considerable fine salt on them over night. Next day pass them through a cullender, moistening them with a little water; set the part thus strained through to dry in the sun, in shallow dishes, in depth half an inch or an inch; and when hardened to something more than the consistence of a jelly, put it away in covered jars, without any other preparation, for daily use. Should it show any signs of injuring, add more salt, and expose the jar again to the sun. This, it is presumed, will seldom be necessary—a specimen of what was prepared for my family more than twenty months ago, is still in a fine state of preservation.

A table spoonful of this tomato jelly is enough to impart a relish to a dish of *pulaf*, that is, rice cooked with meat or butter, or soup, for a family.

Rohan Potatoes.

The last of May, 1833, I received from my friend, the Hon. J. Buel, of Albany, one Rohan potato, which yielded 50 lbs. The last of April, 1839, I planted 48 lbs. of seed and from it on the last of September last, I harvested 4,204 lbs. which measured 74 bushels—many of the tubers weighed over 3 lbs. each—and 20 of the largest filled a bushel basket.

Elmira, Oct. 8, 1839.

HERVEY LUCE.

Breeding Swine.

From the Franklin Farmer.

We feel very much indebted to the writer for the following excellent communication on a subject of the greatest importance. The rearing of swine is a department of rural economy in which there is room for the greatest improvement, and we think our Kentucky breeders will find much useful information and many valuable hints in the communication below.

Buffalo, N. Y. August 31st, 1839.

TO THE EDITOR OF THE FRANKLIN FARMER;

SIR—Agreeable to the intimations in my last, I now come to the rules adopted by the most successful breeders of Berkshires in this vicinity: your readers will excuse my particularity in stating them, for the reasons that the article of pork, as before asserted, is the most important item of western agricultural production, and that I am writing to those who are not above their business, but who take the same pride and pleasure in raising a fine race of hogs, as they would in that of blooded horses or Durham cattle.

A boar should never be permitted to be used till seven months old at least, and it would be much better that he were allowed to run till nine months. But if commencing at seven months, he should cover sparingly, say not more than fifteen or twenty sows till a year old, and these as distant apart as possible—one or two only in a single week. From this time till he has attained pretty full vigor, which I should place at about eighteen months age, he may be used a little more freely. His spring seasons might then vary from twenty-five to thirty sows, and his fall nearly double this number. In the meanwhile he should be kept with care. A strong door may open from his pen into another, to which the sow is introduced, the boar is then let in and allowed one coitus only, immediately after which he must be turned back, and the sow taken away. It has generally been noted that one covering produces a greater number and stronger offspring than two or three, and that an *ad libitum* service, is alike pernicious to all parties.

The best food for the boar during the season, is boiled or soaked corn, with plenty of pure fresh water, and for a variety some will from the house with meal in it (oat is the best) and a raw or boiled vegetable root or two; and as an antidote of disease, and to give tone to the appetite, and assist digestion, a table spoonful or so of

sulphur is occasionally put in his food. Salt is also placed where he can get at it when he pleases, and charcoal or small chunks of rotten wood, together with a handful of crushed bones, if convenient, is thrown. He must be kept up alone in his sty under close cover with a plank floor and plenty of dry litter, the sleeping apartment communicating with a good yard to exercise and root and wallow in, and a strong post placed upright near the centre for him to rub against.

During the interim between the spring and fall seasons, it would be greatly conducive to the health, vigor and longevity of the boar, if he could have a run in a cool grass pasture, with clear sweet water passing throughout, and take lighter food than when in service, but yet sufficiently nutritious to keep him in fair store order. A good animal thus treated, may last ten to twelve years and get excellent stock first to last. But great care must be taken that he be not *overworked*; this is deemed very essential. It is the great fault of us Americans, that when we have obtained a male that has any way distinguished itself, instead of husbanding its resources, we use it too much, and this is one great reason why the stock of such animals so often disappoints the public. I understand that particular English breeders, limit their best horses and bulls to about thirty females, and often as low as twenty or five and twenty. What their usage is for boars I do not know, but I suspect that it would be less than here allowed. It will be admitted however that individual males, may serve well a greater number than limited above, but my principle is, not to work them up to their full capacity; if error must be committed, it is better that it be on the safe side.

Unless a sow were very coarse, and the object was to fine her, I would not allow her to breed till eighteen months old, and if something extra was desired, she ought not to come in under two years. There is then no check in growth, and the first litter is usually as good as any subsequent one. She ought to be taken up and occupy a place alone, either in a pasture or a pen similar to that described for the boar, one month previous to farrowing, her condition kept good, and strictly watched when expected to bring forth. As soon as dropped, see that the pigs are cleaned and take the teat, and the dam rid of the placenta and that carried off and buried. The watching should continue a day or two longer, till the pigs get a little strong and lively, as the sows of this breed are so heavy as to endanger their being lain or trod upon and killed. One pig more saved than leaving the sow to herself, amply repays all this extra attention. Although objections are made to giving food immediately after farrowing, I can see no reason in them; the poor animal is faint and dry, and requires nourishment, and my rule is to feed it with in a moderate quantity a little more than blood warm as soon as it will get up and eat it. This is gradually thickened the next day, and by the time the pigs are a week old, the dam is allowed to eat all it will without cloying. A mixture of oat and pea or Indian meal, of one part of either the latter to three parts of the former, is highly recommended for nursing, together with an equal quantity of steamed vegetables. As soon as the pigs will eat, a small open door should be placed in the pen under which they could run and be separate from the sows, a trough set in, and milk, with a light mixture of oat meal poured out for them. This greatly relieves the sow, and adds much to the growth of the pigs, they wean then, without scouring, losing condition in the least, or being checked in their growth. It is generally thought that pigs do as well to be weaned at six weeks old, as later, as the little milk each then gets, is obtained by more or less quarrelling, and adds a distaste to their other food, besides it is a great consideration to get them off the sow as soon as possible. Eight or ten great pigs tugging at her breast for two or three months is hard to be borne, and frequently very pernicious to her teats. In weaning, all but one should be taken off, put the dam on short allowance, and in two days take the remaining pig away, allowing it at first, to draw the breast twice a day, and then diminish till once in two or three days during a week, then turn the sow out to grass and leave off entirely, and commence gradually putting her into condition again. The Berkshires are great milkers, and must be well attended to at weaning time, or their breasts will fill, become caked and swollen, and finally ulcerate and be the cause sometimes of the death of the sow.

Two litters are allowed per annum, and a preference for farrowing in this climate, is given to the months of April and September. Farther south later and earlier will answer. A pig when first dropped is a very tender animal, and if the weather be too cold it will perish; the dam also is likely to become ravenous and devour her offspring, or refuse to nurse it. Sows are better to be always separate, but with the owner of a large herd, this is inconvenient, and adds greatly to the expense of keeping them. One must do as well as he can in this particular, but when nearly of a size and tolerably peaceable, four may be kept together in a pen, and a dozen or so in a pasture. The breed greatly decides on this point. For instance, I could keep a hundred Chinese together without quarrelling or accidents, they are so good natured and quiet; but then again, they huddle too close, and so want as much separating as others. These being smaller and of quicker maturity than the Berkshires, the sows may come in at a year old, and when full grown, great care must be taken about over-feeding and keeping them too confined. The bellies of this stock are now nearly dragging on the ground, though they have had no other food since the forepart

of May, than what they have found in a poor grass pasture. Those I have sold west, get so fat on shack by November as to be hardly able to waddle, and make the nicest of pork without further feeding. In England they are called par excellence, the "gentlemen's hog," and though their pork inclines rather too much to fat, still it is so sweet and delicate, that it is more generally preferred by those who can afford it. The crosses of these with the Berkshires are in a great repute at the Smithfield market, and I will add that what little has been thus made here, takes the preference. The hams well boiled, and eaten cold, seem absolutely to dissolve in the mouth without mastication. The average weight of my improved Chinese, may be at eighteen months old, from two hundred to two hundred and fifty pounds. Occasionally they will go older to three hundred and even four hundred pounds, but this is very rare. Though small, they have proved to the other races of hogs, what the Arabians have to horses, the foundation of all improvement.

The reader will have surmised from my observations on breeding, at least some of the causes why the Berkshires with you have not come up to the full sizes so often stated by the eastern breeder, that they arrive at, but lest he may not yet thoroughly understand the demerits of the case, in justice to both seller and purchaser, I shall proceed to briefly state them. Suppose then that we start with a pair of Berkshires from unexceptionable stock, the produce may deteriorate in size either from too great affinity in blood of the parents, breeding too young, too old, or too much. Keeping too fat, (which by the way is not often the case) too poor, or too confined—from diseases known and unknown, from runts that will occasionally be dropped, from scantiness and impropriety of food to the pig, and occasionally, over which no one has control, and that check its growth from sufferings through the inattention of the transporters to its place of destination, and finally from a general deterioration in nature. Really good animals that are every way right, are rare, very rare indeed, and when at last obtained, cannot be too highly cherished. That there may be an increased effort to produce them throughout the United States, is the ardent desire of

Your obedient servant, A. B. ALLEN.

We received the following in the same package which brought the foregoing. In reference to the hardness of Durham cattle, since the publication of our article alluded to below, a number of breeders have furnished us with facts going to prove that this breed is equal to the native cattle in vigor and hardness of constitution.—We should be glad to have their experience on the subject written out for publication; and it would be well if some breeder would treat the subject with reference to the physiology as well as the habits of the animals. In point of animal conformation, we never have entertained a doubt that the Durhams would be better able to endure hardships than the scrubs; and our opinions as to the superior hardness of the latter are founded on the fear that the tenderness with which the former are usually (and very properly) treated, might tend to establish a habit in them, unfavorable to their hardness. Let us hear from old breeders on this subject. We shall be able, we think, to settle the question for ourselves the ensuing winter.

"I was just folding up the inclosed missile to send you, when the Franklin Farmer of the 17th inst. was brought down home from the post office. I notice your just and candid remarks on hogs and cattle. You mention deep, muddy roads, but will gather from the contents of my last letter that I had dry ones only in prospect for the Berkshires. I was not aware that you drove in mud. The greater weight of the Berkshires in soft roads would tell against them, still I do not think the Longshanks would have much the advantage over those only a year old or so; above this age I think they would decidedly, though here with yourself, I would prefer to have a trial instead of an *opinion*—coarse bones, however, do not constitute superior strength or endurance. The same diameter of bone of a race horse, as it is more compact, finer grained, and less porous than that of the cart horse, must consequently be stronger, for instance, something like ivory compared with bone. It is said that the Berkshires possess this superiority. But there must be something aside from bone to constitute strength, and endurance—such as ligament, muscle, &c.

"I most heartily wish that your proposition of giving premiums could be acted on at fairs. This ought to be the animal's test, the best and most meat, or the quickest and most work at the least cost—then show should never enter into consideration, only as a desirable appendage, but I fear we all have too much of it in influencing our judgments.

"As to the hardness of Durham cattle, I will relate what I know. You can easily surmise the rigor of our climate here in the latitude of 43 degrees—but my brother's cows wintered well on Grand Island the first year he had them, on hay alone, and without shelter, other than an open shed, for he had just begun his farming and had no barn. The bull, Leonidas, belonging to my father, the two winters he was three and four years old, stood at a stack of marsh hay, and no other food except what he had out of the horse dung heap—his shelter was the lee side of the stack, he never entered a stable or slept under cover to my knowledge during this time, and never seemed to care for sleet or snow. He had a bed high and dry of the same kind of hay that he ate. He did not grow much during these winters, but came out each time in good condition. The hardest native animals that we have, on the same fare, would

not have looked as well. I consider this bull an extraordinary hardy and thrifty animal. It is not the way, however, that Durhams ought to be kept, nor do I think many would bear it; but knowing how good the progenitors of Leonidas were, and as it was never intended to sell him, and size and show, therefore, were not particularly cared for in him, the experiment of thus wintering was begun and watched as it continued, to see that he did not suffer, for the purpose of satisfying ourselves that short horns may be bred hardily. This past winter, when he had attained five years age, we were engaged in drawing out very heavy white oak timber for ship plank, and had twelve of the most powerful yoke of cattle that we could find for this business. Leonidas was put into the team, his step was as quick as the freest, and some of the oxen girthed over seven feet, not one was a match for him at a pull. His girth is about 6½ feet. He is of moderate height and very compact, and when turned out at his ease taking on flesh like a China pig. I will add, that he did the same duty and on the same fare as the other cattle, and came out in the best condition.

"Mr. Rotch, of Otsego county, where the thermometer not unfrequently falls to 30 deg. below zero, tells me that his short horns will bear any intensity of frost.—As the winter season approaches, a short thick under coat of hair resembling fur comes out on them, which is shed as warm weather sets in; he thinks, however, that his stock does not stand the heat quite as well as the native breeds. Still there is no doubt in my mind that these same animals taken to Kentucky would do well, with the advantage of shade trees to shelter them from the rays of the sun during the hottest part of the summer days. It is well known that animals will accommodate themselves to climate. I have a short haired New-Foundland dog, and as active an animal in summer as any I know, he sheds and grows his under coat of hairy fur as the seasons warm and cool.

"The editorial remarks on the feed and treatment of Durham cattle that appeared in No. 39, vol. 2, p. 309, of the Franklin Farmer, as a general rule are admirably just, so far as my experience goes. Does any one suppose for a minute, that a superb short horn can attain its present size and condition, turned out to the blasts of a rude Canadian winter, with a half a ton of hay and what browse it can pick up for its only sustenance during seven months, or that they can support themselves on arid lands that would starve an ass, or among rocks so thick that a peaked nose sheep can hardly get his teeth to the grass? What the breeders of imported animals contend for is, not that they will support life and keep fat on a less amount of food than another, (China hogs excepted,) but that they will give a greater combination of meat and milk, and these of a better quality, and arrive sooner at maturity. It is thus for the interest of the breeder to feed generously, and if he is not prepared with rich pastures and cool groves in summer, and comfortable stables in winter, with plenty of good hay and some meal or roots, he had better let Durhams alone, or indeed any large improved animals. For one, I have no idea of blinking the stock question, and to conclude, I will say, don't pamper and stuff, but feed well and regularly, and make your animals comfortable in all weathers, as you would like to be yourself, or high prices, with the expectation to grow and sell high again, will have been paid in vain.

"Your remarks have unexpectedly led me into so many observations upon stock, that I shall now await some abler pen before touching paper again on this subject, for I fear I may already have exhausted the patience of your readers. Be so good as to make our compliments to western importers, and say that we should be greatly obliged when subsequent herds are brought this way, that they would send the names and pedigrees of the animals with them. From the first importation of the Ohio Company, to this last by your neighbors that passed here a week ago, we have scarce got a name or pedigree with this stock. This would have been a great satisfaction to many here, for then, in hearing of their sales, produce and doings hereafter, we should know what it was. We presume that no one engaged in these importations thought of this, or we should have been obligingly favored by a full sight of all these matters. If the young bull of this lot has not size enough to suit Kentucky, I shall pray for the resurrection of a Mastodon from the Big Bone Lick in shape of a Short Horn for you.

A. B. ALLEN.

Notices of Improved Farm Stock—No. 2.

Before leaving Otsego, I beg to be indulged in a few remarks that may be applicable to the southern tier of counties of Western New-York. Although the winters of this region may be considered long and somewhat severe; still I think it a country admirably adapted to the growing of middle sized stock. The pastures throughout the summer are sweet, nutritious, and enduring, and springs and rivulets abound in every field. These with the fresh, grateful air among the hills, even during the hottest part of the season, makes it peculiarly favorable for stock; and all animals during the pleasant weather, thrive well. I saw here several very promising fields of ruta bage, and was told by the cultivators, that they considered it a very certain and great crop with them. When clay does not too much abound in the soil, I should think this must be so; the stone keeping the ground moist and cold, which, with a proper friability, renders it just the land for turnips. Here, then, is ample nutriment for the winter to keep stock up to the work, placing the higher altitudes nearly on a par with the lower and more amenable regions. I could not learn

that the sugar beet was cultivated at all on my route. I presume, however, some must have tried it, and I should be pleased to know how they have succeeded. Those with whom I conversed, seemed to think it would not do at all; but why, I am yet to learn. I have cultivated it with great success on a hard clay soil, and in a climate little inferior in rigor, to that of the hill country, and I must say, I think it the most valuable root crop that can possibly be raised, and am of opinion that it will yet be the great crop of the Northern states. To say nothing of the prospect of its value for sugar, I think it, upon the whole, the very best root we have for general stock. My pigs would last winter leave warm cooked swill, and run to raw beets thrown to them on the frozen ground. I shall however, speak of this root and its comparative value, more fully after harvesting my present crop, and in the meanwhile, hope that with the introduction of good animals, will come that of well tilled fields of roots for their sustenance; hay alone, being hardly sufficient to keep them up to that full condition so agreeable to behold.

But to proceed. The sun had but little the advantage of us, in climbing up the high hills from Cherry Valley, so that we had a pretty fair meeting upon their burnished tops, and such a glorious view of the wide valley of the Mohawk, seen spread out before us, as would amply remunerate a sluggard for a whole year of early rising. The waters were shrouded in a misty wreath as far as the eye could reach; beyond, rose hill upon hill, and between on either side, waved such fields of golden wheat, tall corn and green meadows, as would gladden the heart of any one to behold. It is an exceedingly rich valley, the Mohawk, possessing great capabilities, and well may it challenge the admiration of the traveller, not only for its fertility of soil, but ever varied roll of hill and dale, and gentle flowing streams.

We found some very good Leicester sheep, at Mr. John Wilkinson's of Esperance, and the prices he mentioned for them, I thought low—they seemed to be bred with care, and the manner in which they were handled in pasture, by a well trained shepherd dog of the Scotch breed, was quite gratifying. At the farm of Mr. Dunn, at Dunnsville, we saw Leicesters also, of the largest size. One buck among them, the farmer assured me, weighed 334 lbs. To the amateurs of large animals, and to every one desirous of increasing their size, I recommend these sheep, but will frankly add, that they are not to my fancy at all, and I would much sooner choose a breed of half their size, even if I were desirous of raising the greatest given quantity of mutton from the same number of acres, and same amount of food. These large animals are no workers in pasture, and must stand up to their knees in grass and clover during summer, and be highly fed on roots in the winter, or it is quite impossible to keep them up to the work—so says every intelligent breeder that I have conversed with upon the subject. Mr. Dunn, residing in Albany, I had not the pleasure of seeing, to learn his opinion, which, for ought I know, may be the antipodes to the above. He also has a superb herd of dairy cows of Mr. Bullock's breed of Short Horns. They are deep and rich milkers, and on good pastures, I should consider them very valuable and productive animals.

Leaving the turnpike about two miles this side of Albany, we moved round a beautiful park composed mostly of evergreens, at the gate of the Three Hills farm, belonging to Mr. C. N. Bement. This place is greatly improved since coming into his possession; a charming house with a nicely arranged and well stocked garden in front, neat fences, and young trees planted out and flourishing in rows, where before it was all barren and desolate, and other rural embellishments are in progress, that will soon make his home, as indeed it is now, a very agreeable one to occupy.

The crops here, were better than I expected to find them on so light a soil, the oats, if any thing were too rank in growth, the rye good and the mangel wurtzel the best I have seen this year. The ruta bage also, was very promising, though in common with other crops, where I had visited, the cold heavy rains had somewhat put them back. I much liked his yard, barn, and stable arrangements, and in building for myself should copy the piggery, merely doubling the width, and making two rows of pens with accompanying yards on each side of the gangway. I found here a very cheap and simple apparatus for raising water, in successful operation. A small stream runs through the farm, across which a dam is thrown that gives a fall of 3½ feet. An overshot wheel of 2 feet 8 inches in diameter, is here placed with a pump 1½ inches bore, and 10 inches long, forces up from 12 to 1400 gallons per day to the height of 55 feet, and 42 rods distance to the mansion house, from whence it is carried, in lead pipes down to the stock yards, piggery and barns. The water works are protected by cheap covering, from the frosts of winter, and the supply during the most intense frosts, is always kept up, making a comfort and convenience in obtaining this necessary fluid, that highly commends itself to the attention of all who are desirous of bringing water to their houses and stock-yards.

Mr. B.'s Durhams, like every other breeder I have called upon, have become pretty well thinned in point of numbers; he has however, a few still for sale. Among these I would particularly notice his yearling bull Astoria, as being of good size, and of very perfect symmetry of form. I also took quite a fancy to a large three year old heifer, the name of which I do not recollect. But Durhams as I have before hinted, I do not think the proper stock on light soils, either at the North or South. There are exceptions, but as a grand rule, they

must have a luxuriant pasture that produces a good thick bite in summer, with generous feed throughout the winter, or it is idle to think that they can be kept up to good flesh and great size. I believe Mr. B. for one, is becoming convinced of this, and has accordingly procured some Devons, an Ayreshire heifer, with more expected soon to arrive from abroad, and also a few good native cows. One of these last of handsome colour, limb and shape, unites extraordinary milking qualities. From the 19th of December to the 18th of January, she made 56 lbs. of well worked butter, which is nearly 2 lbs. per day, a great yield for the dead of winter. She is what I think Col. Jaques would class among his celebrated "cream pot" breed, without hesitation. I have ever been a great advocate for the improvement of our native breeds of all description of stock, and I am glad to see Mr. B. enter upon the subject so spiritedly. Massachusetts' able Agricultural Commissioner, Mr. Colman, has shown by his reports, that we are not deficient in first rate dairy cows. These have only to be carefully selected and crossed with Durham bulls of fine points, middling size, and of deep milking families, to soon ensure as valuable a breed of dairy cows, as could be imported at ten times their expense from abroad. In this way, the Ayreshires have been made, that have become second, now only to the Durhams. Could the attention of stock breeders be better employed than turning to this subject? It really seems to me the only way that our country can ever be filled up with good milking and fattening animals. A few years of such breeding, would assuredly do more for us than a century of importations.

I here saw a pair of young Herefords, imported in May—I am not much conversant with this breed, but if these be fair specimens, as I am assured they are, when full grown, they must be very large and noble animals. They have not the fineness of head or great angle from the hip bone back, and thickness of loin of the Short Horn; they have latterly however, generally beat them in weight, at 4 years old and above; and at the Smithfield cattle show last year, I am informed, took five out of the seven prizes. Under 4 years the Short Horns attain greater size and better flesh, maturing soonest, and are far before them as milkers. The Herefords are a dark red with a white or brocked face, white breast and bellies, and occasionally line backed. They are long bodied, straight limbed, and heavy in the most valuable points, thrifty, and of good constitutions. For power in the yoke, they probably excel all other breeds, and for fine and at the same time, heavy beef, I should think they would obtain great favor with the western grazier. Mr. B. is making several experiments of crossing with all these breeds, not only on the native stock, but somewhat with each other, and will doubtless take pleasure in giving the public full particulars of the result.

The stock of sheep is highly bred, and is of sufficient variety—Merino, South Down and Leicester. Of the pigs, I need say but little, inasmuch as they have a very numerous representation abroad, that are able to speak pretty well for themselves. A new boar, from Col. Williams' late importation, has been added within a short time to the piggery. He has good points, and promises when full grown, to be of great size. His color, however, and some other characteristics are different from the old stock. It was merely accidental Mr. Hawes bringing over animals with so much black in them, as those who have long resided in Berkshire Co. England, tell me that the original color of this race abounded quite as much in white as black spots. There are other points besides color, to distinguish this superb breed of hogs, for instance, their great thickness of ham and shoulder; long straight round barrel, their hair and pointed ears, these make them recognized at once to those who are at all conversant with Berkshire blood.

A. B. ALLEN.

China Tree Corn.

Albany, Oct. 31, 1839.

Mr. J. BUZL—Dear Sir—You will confer a particular favor by inserting the enclosed communication of Mr. Roberts, in the next number of the Cultivator. If ever in my power, I will be happy to reciprocate the favor.

Yours very respectfully,

W. THORBURN.

[From the Baltimore American Farmer of October 9.]

CHINA TREE CORN.—There are few subjects on which such opposite opinions have been formed and expressed, as there have been in regard to this corn. Whilst in some places it is denounced as a humbug and a cheat, in others it is declared to be a valuable and prolific variety, and is considered worthy the attention of the farmer. We have heretofore published communications highly favorable to it from Mr. Sangston and Dr. Muse, and we present a second one this week from the pen of Ed. P. Roberts, Esq. who has felt it due to Mr. Thorburn to give this second testimony in his favor. We frequently hear of disappointments in the result of planting seeds, which in many cases are produced no doubt from unsuitable location, or other similar circumstances, but there is as little doubt, are as often from the want of genuineness in the seed. As we are anxious to do justice to every one, we most cheerfully give place to the communication of Mr. R.

THE CHINESE TREE CORN.

J. S. Skinner, Esq.—Dear Sir—In publishing my note on the subject of the Chinese Tree Corn, of the 31st of July last, you appended a note from a correspondent of Fairfax county Virginia, who remarks, that he had "planted two ears of the Chinese Tree Corn upon land

well manured and limed—the result will prove it absolutely worthless, and more like a rush than a tree.”

I have read also in your paper an article from that excellent paper, “The Yankee Farmer,” whose editor affirms, that “the China Corn is a complete deception practised upon the credulous and confiding public,” and adds with great severity,—and if the Chinese Tree Corn was the worthless thing represented, with equal justice,—that the author of the deception would be entitled to the severest reprehension. The same article contains the declaration of Mr. Howard, the able conductor of the Zanesville Gazette, that it was not an early corn, and that some farmers “observe that it will require two years to mature this corn.”

I have no doubt that each of those gentlemen have spoken conscientiously upon this subject, and I am equally certain, from the result of my own experiment, that they have been deceived in the variety of corn they have purchased as the Chinese Tree Corn; for it is impossible that results so different to my own, could, under any other circumstances have occurred.

As I promised you in my former note that “in the fall I would measure my little patch, and give you a faithful account of its yield,” I now proceed to redeem that pledge, and I do it with the more cheerfulness, as I conceive it but an act of justice due to Mr. Thorburn, that those at least with whom his corn has succeeded well, should speak of it as it deserves, in order that so far as their moral influence may go, his name may be rescued from the fate of those who practise “deception” either upon private individuals, or the public.

With these explanatory remarks, I will state its yield, and such other characteristic traits as it strikes me to possess.

My patch was planted on a plot of ground in my garden, 32 by 23 feet in dimensions, making 736 square feet. The soil was a deep rich loam, which as I described to you, I highly manured. It had the benefit of good culture, and its working was always done at the right time. On the 15th of September, I gathered and housed my little crop, consisting of 254 good ears, rejecting all the nubbins. While the corn was in the roasting ear state, as I observed in my former note, I pulled 24 good ears. If then, I add these to those I pulled on the 15th of September, it gives the product of 268 ears on 736 square feet of ground, and as there are 43,564 square feet in an acre, the yield calculating that each ear will shell half a pint of corn* was at the rate of 128 33-64 bushels per acre. But this is far short of the actual yield, as one of my cows found her way into my garden on the night of the 25th of August, and destroyed a considerable quantity. Besides this, my chickens depredated largely upon it. Having spoken of its yield, I will proceed to state its peculiar traits of character.

Its suckers branch out from the root, and after arriving at maturity, it is difficult to distinguish them from the main stalks, being so nearly equal in size, and so alike in appearance.

The stalks and suckers were from 9 to 11 feet high: not so thick as may be supposed from the number of suckers which were thrown out and permitted to grow, as the larger varieties of field corn, which are generally carefully suckered. From actual measurement, however, I can state that the suckers and stalks in my patch were from 3 3-10 to 4 1-10 inches in circumference, measured four inches from the ground. I planted but two grains of corn in each hill, and yet these hills had on them 10, 14, and in one instance 19 good sized ears each.

The ears have 10 rows of grain on them, are from 8 to 11 inches long, of medium thickness; the grain a beautiful pearly white flint, of great specific gravity, and from the sweetness of the roasting ears which we cooked, I have no doubt will prove an excellent meal corn, and be found to possess a very large quantity of saccharine matter. It makes, as may be presumed, a very large quantity of fodder; and on that account is desirable to a very great portion of corn planters, most of whom rely in a measure upon their cornfields to furnish winter provender for their stock.

So far from its being a late corn, and requiring two seasons to mature it, I consider it an early corn, which opinion is borne out by the fact of my having gathered and housed mine on the 15th of September, a period when much other corn is scarcely out of the milky state.

I have given the result of my own experience above, and will add, that two of my friends who made experiments with it also, speak in high terms of its productiveness. Besides these gentlemen, I observe in your paper that Dr. Muse and Mr. Sangston, of the Eastern shore of this state, are well pleased with their experiments.

I have thus discharged a duty which I owe to Mr. Thorburn, and will remark, that in doing so I have no possible interest, either of a pecuniary nature, or of feeling, to subserve. He is a gentleman that I know not except by reputation. I have never had the slightest correspondence with him; and in all human probability never will. But it is sufficient for me to know that he is a distinguished Seedsman, and that he is the original of Laurie Todd, to make me feel solicitous about his fame, and willing, whenever that fame may be assailed with unmerited obloquy, to take up the gauntlet, couch a lance, and run the hazards of a tourney in his defence.

I will conclude this, perhaps uninteresting letter by stating, that I am so well pleased with the Chinese Tree Corn, that I have determined to plant no other kind next season as a crop corn. ED. P. ROBERTS.

Mulberry Grove, Oct. 1, 1839.

* I measured an 8 inch ear, the yield of which was half a pint.

Sugar.

The population of all the sugar growing countries in the world is about 408,000,000—it is estimated that each inhabitant consumes ten pounds per annum—amounting in all to 4,080,000,000 lbs. nearly four times as much as is consumed in Europe, and in the United States. Great Britain consumes 400,000,000 lbs. or 24 lbs. to each inhabitant—the United States 200,000,000 lbs. or 16 lbs. to each inhabitant—our domestic production being estimated at 50,000,000 lbs. In Ireland the consumption is 40,000,000 lbs. or 6 lbs. to each inhabitant. In Russia it is still less, being 60,000,000 lbs. or only about a pound to an inhabitant. Of the quantity consumed in Russia, it is supposed that 8,000,000 lbs. are beet sugar. Belgium consumes 30,000,000 lbs. or 7 lbs. to an inhabitant, of which 5,000,000 lbs. are beet—and Prussia, Austria and the east of Germany, 200,000,000 lbs. or four pounds to an inhabitant, of which 20,000,000 lbs. are beet. Holland consumes 50,000,000 lbs. or 16 lbs. to an inhabitant. Spain the same quantity, or almost 4 lbs. to an inhabitant. France, 230,304,549 lbs. or 7 lbs. to an inhabitant—of this, 107,905,785 lbs. were, in 1836, manufactured from beet roots. Thus we have, for the total consumption of sugar in Europe, 1,267,000,000 lbs.—of which 140,000,000 lbs. or 62,500 tons are beet sugar—and for the annual consumption throughout the world, 6,267,000,000 lbs.—worth, at 6 cents a pound \$376,620,000.

Margraff, a Persian chemist of Berlin, made the discovery nearly a hundred years ago, that the beet root contained a good crystallizable sugar. After this he enlarged and varied his experiments, but did not invent means of making sugar from the raw material, on a scale sufficiently large to render it an object of interest to capitalists. He died in 1782. It was Archad, also a chemist of Berlin, who discovered the method of extracting sugar from the beet on a large scale, and at a moderate expense. He first announced this result in 1797. The National Institute of France, appointed a commissioner to examine into the subject. Manufactories were established, but were not successful—and the high hopes which had arisen, of this new branch of industry in France, seemed destined to disappointment. Political events, however, afterwards favored the attempt to find an indigenous source for the supply of sugar, and after many experiments, the preference was given to the beet. In January 1812, Napoleon issued a decree establishing five chemical schools for teaching the process of beet sugar making—detaching one hundred students from schools of medicine, pharmacy and chemistry, to be instructed in those establishments, and creating four imperial manufactories, capable of making 4,408,000 lbs. of raw sugar annually. Premiums were also awarded to persons who had already distinguished themselves by a successful application to this new branch of industry—and an impulse was thus given to the manufacture of beet sugar throughout France. The battle of Waterloo gave a great shock to this branch of industry, but some of the sugar establishments continued to thrive after this action; and in 1818, after the allied troops had left Paris, the government began to turn its attention towards the encouragement of an industry, which had struggled meritoriously and successfully, to preserve a boon to the French nation. It has already been stated, that in 1836, 107,905,785 pounds of sugar were made from beet roots.—*North American Review.*

Cost of Raising Sugar Beets and other Roots.

In examining an estimate of the expenses of making beet sugar in this country, many farmers will consider that the expense of raising the roots is reckoned too low; this is owing to the little attention that has been paid to root crops, and to farmers in general not being acquainted with the best and most economical method of culture, and not having machines and implements to enable them to manage the growing of root crops to advantage.

These unfavorable opinions will in a measure continue, till root culture is more in practice, for though cases are stated of crops raised at a small expense, they will be regarded as extraordinary cases, and estimates made on paper, in which no error can be pointed out, will be looked upon as something uncertain; yet these favorable accounts will lead the enterprising and intelligent to try and see whether these things are so, and although their expectations may not always be realized, yet they will find a great advantage in attending to root culture and be led to inquire into the most frugal method of pursuing it. Farmers who dig up a small patch and sow it in beets, and do not weed it till there are five hundred weeds to one plant, may find that the cost of raising a bushel of beets is one dollar, when with prudent management in raising on a large scale, ten to twelve bushels may be raised with this expense.

In raising beets and some other crops in a garden we have managed to do the weeding before sowing, and find that it is a great saving of labor: that is, pursue that manner of culture that will destroy the weeds before the seed is sown; and the same plan may be followed in field culture, and even to greater advantage, as most of the labor can be done by animal labor, which is much cheaper than manual labor in this country. And this, as has been observed in the articles lately published on the subject, will enable us to raise beets as cheap as they are raised in France.

Our method has been to put on the manure and stir up the ground in the fall or early in the spring, the former is preferable, as a frost will loosen the soil and make it mellow, and the weeds will start in the spring before the soil is dry enough to work. When the weeds were well started, we worked the ground over

again. About the 20th of May the ground was well worked over, and the seed sown, after being soaked, so that it would come up in a short time; the plants were up and large enough to hoe when scarcely any weeds appeared, the hoeing was done in a short time, the soil being very light and mellow, and there was but little trouble on account of weeds through the season, they having been mostly destroyed before sowing. If this plan should be pursued in field culture it would save nearly one-half of the expense. One hour's work with a horse and cultivator in stirring the earth and destroying weeds before sowing, would save several days in hoeing.

The following method of culture for a field crop would be very economical as to weeding, which seems to be the most expensive part of the cultivation. A piece of land, a deep mellow soil that has been well manured and planted one year in corn or potatoes, would be in good condition for a beet crop. If it has been ploughed more than one year there would be danger from the grub worm, which, we believe is the principal injury from insects to which the sugar beet is liable.

A piece should be selected that can be ploughed deep, and the stones, if any, removed. If there has not been sufficient manure applied to the previous crop, apply the manure and plough the ground very deep in the fall; if it cannot be done at this season, then as early as possible in the spring. When the weeds have started, go over it with a cultivator, and in a few weeks go over it again in the same way, this will loosen and pulverize the soil and destroy the weeds. From the 20th of May to the 1st of June, let the earth be thoroughly stirred with a cultivator, or if the soil be not very loose it may be well to plough it again, then go over it with a light harrow to make the surface level and smooth, and the soil fine; be ready to sow as soon as the ground is prepared while the surface is moist and that the plants may get the start of the weeds. Pour water as hot as can be borne by the hand, on the seed and let it soak a day and a half or two days, then it will vegetate and up, and the plants will be large enough to hoe before the few weeds are liable to grow up, so as to be much trouble.

Sow the seed with a machine and the expense will be light. Let the rows be from two to two and a half feet apart, then a light cultivator may be used between the rows; in thinning the plants let them stand about one foot apart. If any places are vacant from the seed not growing or the grub worms eating them, the deficiency may be supplied by transplanting; though transplanted beets do not form so handsome a root, yet they yield about as much as the other. The expense for weeding and loosening the soil will not be great. In harvesting if the beets cannot be pulled easily, a furrow may be ploughed near each row with a horse plough, then they may be pulled with little labor. By this, or some better way if it can be devised, beets may be raised at a small expense, and as lands and animal labor are cheaper here than in France, and as much labor can be done here by animals which is performed there by the hands, we think our advantages are equal to that of France in the cheapness of manual labor. But supposing our advantages in raising the beets are not equal to a cheap production, we have reckoned the expense higher in the calculations we have published so as to conform to a fair estimate on all expenses. Instead of \$3.50 per ton as in France, we have reckoned at \$5 per ton. No calculation on the expense of raising beets or other crops can be made exactly suited to all parts of the country, as the prices of labor and land are different. Near cities and large towns, and near the seaboard owing to good advantages for markets and communication, lands are higher, and the rent of them more of course than in the interior; in such cases labor too is usually somewhat higher.

Estimated expense of an acre of Sugar Beets.

Use of an acre of land well prepared for beets and manured, or manured in the previous crop,....	\$12 00
Ploughing,.....	4 00
Cultivating, horse, cultivator, and hand 2 hours,.....	50
Twice more before sowing,.....	1 00
Seed \$2.25, sowing with a machine, 75,.....	3 00
First hoeing,.....	4 00
Second hoeing, thinning, and transplanting to supply deficiencies,.....	4 00
Hoeing again and loosening the ground with machines,.....	2 00
Harvesting,.....	9 00
	\$40 00

Make the rows 2 feet four inches apart, and then a cultivator can be used in hoeing. If the beets stand one foot apart in the rows, and weigh 24 lbs. each, the yield will be 20 tons. In rich ground, at that distance, a great number will weigh 4 or 5 lbs. each; twenty tons is a good crop, probably a large crop, but not extremely large for in some cases 25 or 30 tons to the acre have been raised in this country. At the above expense of \$40 to the acre with a yield of 20 tons the cost would be two dollars per ton. We make this estimate to show how cheap beets may be raised under favorable circumstances, such as good land at a fair price, convenient machinery and implements, and the most prudent management in the culture, with labor at a moderate price, and a favorable season. We have no doubt that in some parts of New England beets could be produced in great abundance at the above price; but we must not always expect a combination of favorable circumstances.

Supposing we reckon the produce only two-thirds as much as above, say 13½ tons and the cost 33½ per cent

more, which will be 53.33; then the cost of the beets will be only \$4 per ton, one-fifth less than Mr. Bosson reckoned in his calculation on the cost of the beetsugar. If we reckon 50 pounds to the bushel, 13 1/2 tons to the acre would be only 533 bushels which would be no more than a middling crop; not half so much as has been raised in a number of cases that have been named.

Flemish Husbandry.

AN ACCOUNT OF SOME SELECT FARMS.

The details of Flemish husbandry cannot be better explained than by reference to a few of the best cultivated farms in different parts of the country. There is a great uniformity in the general practice, but there are considerable variations introduced in consequence of the diversity of soil and situation. One of the first farms we shall notice is situated within a mile of Courtray, and is in the occupation of a man who has more theoretical knowledge of agriculture than most other Flemish farmers; he is a native of France, but has passed a great part of his life in Flanders; and his wife, who seems very active and well acquainted with the details of a farm, especially the dairy, is a Flemish woman. The place where the farm is situated is called Walle. The extent is thirty-six bonniers, each bonnier being about three acres. The soil is a good sound loam, which, although it is there called a strong soil, would not be reckoned very heavy in those counties in England where the clay prevails. It is such land as may be seen in parts of Essex and Hertfordshire, which will produce good beans, without being too heavy for turnips, or even carrots. The quality of the soil does not vary materially through the farm. It is not of so rich a nature as the clays of the polders, and, when washed, contains a considerable portion of silicious sand; but it has been enriched by repeated and ample manuring, not only by the dung and urine of the cattle kept on the farm, but by purchased manure of every description, especially the sweepings of the streets of Courtray and the emptying of privies.

The farm-buildings are very conveniently arranged at a small distance from the high road, from which there is an approach by an avenue of trees. The farm house, which is substantial and convenient, and the stables for the horses, occupy one side of a square or rectangle of sixty yards long by fifty wide. Opposite the house stands a roomy barn, and another occupies two-thirds of the west side of the square. The east side is taken up with a cow house, ox-stalls, and other useful buildings. The entrance is by a gate-way with double gates, at the north-east angle of the yard. A paved causeway ten feet wide runs all round the farm-yard, raised about eighteen inches above it. The cow-stall, barns, &c. are on a level with this causeway; and the yard slopes gently towards the middle, where there is an oval tank surrounded by a brick wall, which rises two feet above the yard. There is an opening in this wall sufficient to allow a cart to be backed into it: from this opening the bottom slopes to the further end, where it is three feet deep. This is the *croupissier*, into which all the liquid part of the dung runs, when it is washed by the rain, through openings left in the wall which surrounds it.—The urine is collected in another large vaulted reservoir immediately under the cow-house and ox-stalls.

This description applies equally to most of the farmyards attached to large farms; for one hundred and twenty acres is a large farm in Flanders.

Thirty cows are constantly kept on this farm, and six horses, besides young heifers and colts. The cows are always kept in the stalls, and fed with green food in summer, and roots with meal in winter. Each cow has a stall in which she is tied up by herself, separated from the next by a large flat slab of stone about four feet square set on edge. There is a low stone trough before her, and an opening in the wall to give her air. She is tied by a leather strap round her neck, with a chain fastened to a staple, which goes through the wall and is secured by a nut and screw on the other side. The cow-stable is forty yards long without any division, and six yards wide, so that there is much room behind the cows. In the middle against the wall is a pump to supply water for the cows and to wash out the stable, which is very frequently done, the whole being swept into the urine-tank below through an aperture, towards which all the gutters slope from the cows stalls. Under the pump is a stone cistern, which is constantly kept full, that the water may acquire the temperature of the air. In this cistern bean or rye meal is mixed, in the proportion of a large double-handful to three gallons of water, so that the cows never drink the water without this addition. It is supposed to increase their milk and make it richer. Outside of the building is the pump, by which the urine is raised to fill the casks in which it is conveyed to the land. Another pump is in the centre tank, by which the dung water is raised, either to mix with the urine when rape-cakes have been dissolved in it, or to pour it over the solid dung to accelerate the putrefaction. The pens for fattening calves, are placed behind the wall behind the cows, and being only two feet wide, take up very little room; there are only two or three of these, for, so near a considerable town, the fattening of calves is not so profitable as selling fresh butter.

A few acres of grass are kept in permanent pasture near the house, and the cows are put there for a few hours every day in summer, more for exercise, and for the sake of their health, than for grazing. All the rest of the land is arable, and cultivated very strictly according to a regular rotation. Mr. Doutreluinge, the occu-

per, informed us, that he had several times made experiments by varying the usual course; at one time increasing the quantity of flax, and at another that of colza; but he found, by keeping very exact accounts of the expense and produce, that every deviation caused a loss in the end. The rotation is very simple. The whole of the arable land he divides into six parts—one part is half in flax and half in colza, one wheat, one rye and turnips, one oats (five-sixth of which with clover-seed,) one clover, with a small proportion in potatoes and carrots, one two-thirds wheat and one-third beans.

The land intended for flax is ploughed soon after harvest with a very shallow furrow, or only well harrowed to destroy the stubble; rotten dung is spread over it, at the rate of twenty large loads per acre, about the month of September. It is left spread on the land for some time, and then rolled with a heavy roller: this is to press it into the ground, and make it fine. It is then ploughed in with a shallow furrow. When the plough has made a furrow, six or eight men with spades dig spits of earth out of the bottom of it, which they set upon the part already turned up, so that the ground is partially trenched. The plough on its return fills the holes thus made, and, when the whole is finished, it lies in a very rough state with large clods all over it; so it remains all winter. In spring, when the clods are pulverized by the frost, the harrows pass over repeatedly and level the surface. The land is then ploughed and harrowed several times, till it is thought sufficiently fine. Liquid manure is now put on. This consists chiefly of the emptyings of privies and the urine of cows, and also of rape-cakes dissolved in urine, and left to ferment for some time, which is done in the open tank in the yard. The quantity of rape-cake used depends on the supply of *eidanges*, which are preferred, the other being only a substitute. This is allowed to soak into the ground for a few days. It is then well harrowed, and the linseed is sown at the rate of about three bushels to the acre, and covered by the harrows reversed or the *traineau*. The only peculiarity in this process is the spreading of dung over the land and letting it remain some time before it is ploughed in. According to the prevailing opinions, we should say that a portion of it must evaporate and be dissipated. But the practice must not be hastily condemned on mere theoretical principles. It is well known that there is no manure so good for flax as that which is collected in the towns by poor people, who sweep the streets, and make composts of everything which is capable of putrefaction. This compost is sold, in a dry state, by measure; and we have repeatedly seen the preparers of this manure spread it out in dry places in the sun to bring it to a marketable state. Probably the origin of this may have been that, by being dry, the carriage of it is lighter; but that the virtue of the compost is not lost by drying appears from the reputation it has amongst the farmers, who piously believe that its extraordinary effects are to be ascribed to a peculiar blessing of God, as it enables the poor and destitute to gain a livelihood. It must be recollected that this manure is so prepared by repeated turning and watering, and that the vegetable fibres in it are almost entirely decomposed. It is probably that in drying nothing is evaporated but simple moisture. This practice being peculiar, and not very generally adopted, renders it more deserving of notice.

A little beyond Courtray along the Lys, towards Menin, is a farm particularly noticed by Mr. Radcliffe in his report of the husbandry of Flanders. It was then in the occupation of a Mr. Van Bogeat, who afterwards retired with a competent fortune, chiefly acquired by farming. It is now occupied by Mr. De Brabant, who cultivates it very carefully, with some slight deviations from the practice of his predecessor. This farm is called Vollerand, and is one of the finest and most compact we have seen. It consists of about one hundred and forty acres, of which about twenty are fine meadows along the river, occasionally flooded in winter, but not irrigated; about ten acres are rich heavy land, adjoining the meadows, in which beans and wheat thrive well; all the remainder, about one hundred and six acres, or rather more, lie in an oblong field bounded by a hedge-row, at one corner of which, nearest the river, stand the farm-buildings. A road or path, six feet wide, runs through the middle of the field, and the road which leads to the farm-yard skirts one end of it. The soil of this field is a rich light loam, which lies over a substratum of clay, but at such a depth as to be perfectly sound and dry. It is not extremely fertile in its own nature, but has been rendered so by many years of an improving husbandry. Every part of the land has been repeatedly trenched and stirred two or three feet deep; and the immense quantity of manure, chiefly liquid, put on year after year, has converted the whole into a very rich mould. The strength and vigour of the crops bear witness to the goodness of the husbandry. As we walked along the middle path, which is just wide enough to admit the wheels of a cart, the whole produce might be seen at once. It was just the time when the flax had been pulled, and remained stacked on the ground. The colza had been beat out, but the stems remained in heaps where they had been cut. There were fifteen acres of most beautiful flax of a bright straw-colour, and the stems a yard long. This, besides the seed, was worth in the stack from 25*l.* to 30*l.* per acre; twelve acres of colza had produced about fifty quarters of seed; eighteen acres of oats looked so promising, that they could not be set at less than nine quarters per acre; eighteen acres of wheat, which stood well with short but plump ears, we valued at five quarters

per acre; eighteen of rye, partly cut, with the straw above six feet high, would probably produce rather more than the wheat. There were six acres of white poppy, of which every plant was strong and upright, and the ground under it as clean as a garden; we are no judges of this crop, but we were informed that the expected produce would be about seven or eight hectolitres (twenty to twenty-three bushels)* per acre; six acres were in potatoes, expected to produce eight hundred hectolitres (two thousand two hundred and seventy bushels)—three hundred and seventy-eight bushels per acre.) A small patch, about an acre, was in carrots, which looked fine and large; twelve acres were in clover, nearly the whole of which was cut green to give to the cows and horses; it produces three good cuts in the year where it is not allowed to go to seed. The ten acres of heavy land were partly in beans and partly in wheat.

Thus we have one hundred and sixteen acres all profitably cropped, leaving four acres for the roads and farm buildings. Although this farm is within two miles and a half of Courtray, the greatest part of the manure is collected on the farm. Rape-cake is used more profusely, and to this, as well as to the depth of the soil, the beauty of the flax is ascribed. Mr. De Brabant usually sows his flax after oats, which, on this account, have been very highly manured. His urine-tank is very capacious, like a large cellar under his cow-house. The farm-buildings are arranged nearly as those of the last described farm; he has a large dry vault to store his roots in winter. His stock consists of twenty-seven cows in milk, five or six heifers, nine horses, and three colts. The rent of this farm, including land-tax and other imposts paid by the tenant, amounts to 4880 francs, 187*l.* 15*s.* which is fully equal to 270*l.* in England, taking the value of agricultural produce in the two countries as a measure.

There is nothing very peculiar in the practice of Mr. De Brabant. He ploughs the land well, lays it in narrow stiches with deep intervals dug out by the spade, puts manure with every crop, more or less, keeps the land clean by weeding, and adopts a long and varied rotation.

The beauty of this farm consists in the equality of the soil of the great field and its depth. This is not so much owing to natural advantages, as to a long course of stirring and manuring, by which there is such an accumulation of humus, as to render a sandy loam, naturally of moderate fertility, equal to old garden ground, absorbent and retentive of moisture, without being wet. The labourers on this farm were mostly lodged and boarded in the house, and they had all the appearance of being healthy and well fed. The farmer himself is a tall athletic man, with a good-natured, but shrewd countenance; he seemed very ready to give every information respecting his farm. His wife, equally active, superintends the dairy, and took some pride in showing us in a cool vaulted cellar numerous pans set on the brick floor filled with the last milking, and deeper vats in which the milk of the preceding day had been put in its progress towards churning. The milk, even when it is not intended to be skimmed, is always set in shallow pans for twelve hours before it is poured into the vats, and the different milkings are kept separate.

The next farm which we shall notice is somewhat different from the two preceding, and if the land is not quite so carefully tilled, it is made very productive from the quantity of stock kept upon it. It is situated between Furnes and Dixmude, at a place called Stuiwenkerke. It partakes of the nature of a polder farm; for the land may be considered as an old polder. The extent of the farm is considerable, upwards of four hundred acres, of which two hundred are in rich natural pastures, the remainder is cultivated with the plough. The soil is here a good stiff loam, having the appearance of clay; but it approaches more nearly to a marly soil, which crumbles when moderately wetted. It contains a considerable proportion of calcareous matter mixed with sand and clay, and is decidedly of a superior quality to that of the two preceding farms. It requires less manure, but is more difficult to cultivate; both the extremes of wet and dry in the weather rendering the plough useless. In the first case the surface is converted into mud, and in the latter it cannot be ploughed; for if sufficient strength were applied, it would rise in large clods, which would harden in the sun, and remain so till continued wet or frost crumbled them again.—Wheat and beans are principal crops, and the latter are more carefully cultivated than we have seen in any other part of Flanders; they are planted in rows, in imitation of kitchen-gardeners. A drill is drawn with a hoe, and beans are deposited in it three or four inches apart; the earth out of the next drill serves to cover the seed. The distance between the drills is about ten inches or a foot, which in rich land is too near. When the beans are out of the ground the intervals are hoed. The produce is from three to five quarters per acre, but might be more with wider intervals, and more effective hoeing.

The rotation of crops on this farm is generally—1 fallow; 2, winter barley; 3, beans; 4, barley or wheat; 5, beans, clover, potatoes; 6, wheat; 7, oats. The fallows are not ploughed before winter, but four times in spring and summer. Thirty cart loads of manure in a long state, without the straw being much decomposed, are put on before the last ploughing, and the winter barley is sown in October; the produce is eight quarters per acre. Wheat on the same preparation produces from four to five quarters, so that the land is better

* A hectolitre is 2.837 Winchester bushels.

suited for barley, and this last gives a better return with less exhaustion of the soil; every year a small portion of the pasture is broken up, and sown with colza. This would probably not have been permitted, had the farm not been occupied by the son of the proprietor.

The natural fertility of the soil is shown by the succession of the crops produced on the newly-broken-up land without any manure; viz. colza, wheat, beans, barley, beans, wheat, clover, wheat, beans, oats. After this scouring it is no wonder that the soil wants rest; and this is given without much care, by merely allowing the natural grasses to spring up without the trouble of sowing the seeds. It takes three years before there is any tolerable pasture; but as it remains twenty years or more in grass before it is broken up again, the deteriorating effect of the cropping is not observed. How much more productive might not the land be made by more judicious management! The whole of the farm has repeatedly undergone this process, and must have been extremely rich at first. At present it requires repeated manuring to produce even average crops, except on that portion which has been broken up from old grass. Under a regular and judicious course of convertible husbandry, this land might be kept up in the highest state of fertility, and the ultimate profit would be much greater.

If we cannot altogether praise the management of the arable land, we must do justice to that of the dairy and stock. Here the finest and richest butter in the world is made. The stock consists of twenty-four milch cows, twenty-eight yearling calves, twenty-eight two-year-old heifers and steers, and fifty bullocks. All these are wintered on straw, hay, and split beans. The straw is cut into chaff, and the farmer, Mr. Graeve, son of the proprietor, a spirited young man, has procured from England a machine for cutting chaff, which is to be worked by a horse, in the same mill by which he churns his butter. The bullocks are fattened on the pastures, and are fit for the butcher by the end of July or August. The weight of the carcass, when slaughtered, averages ninety stone, of eight pounds each, and sells for 12*l.* or 2*s.* 8*d.* a stone. The cows give each, on an average, twelve quarts of milk per day. He churns three times a week, making forty pounds at each churning. The cream only is churned in a barrel-churn, which is turned by a horse. The butter comes in one hour and a quarter in summer; in winter it takes two or three hours. As soon as it is taken out of the churn it is well washed, to get all the butter-milk out, and immediately salted: before night it is worked again, and more salt is added. It is then put into the cask, and brine is poured over it. It sells for one franc (10*l.*) the pound of twenty ounces. This butter is famed for its keeping, and is therefore much sought after for ships' provision. In summer there are fifty labourers on this farm, half of whom are boarded and lodged, and have from 8*l.* to 12*l.* yearly wages. The day labourers have 9*d.* a day and their food.

The calves which are reared, of which there were twenty-eight when we visited the farm, have per day a bushel of oats and eight oil-cakes amongst them, with hay and cut straw, from November to May. The fifty oxen have a sack of beans per day amongst them, and cut straw as much as they can eat. There were two hundred sheep, which are folded on the fallows, and in the day-time feed in the pastures and along the canals and dykes. When they are fat they are sold and others bought in. None are bred: for, when kept long on this land, they become subject to the staggers and the rot in winter and spring; they are therefore fattened and sold as soon as possible.

The breed of pigs was much better than the generality of Flemish pigs, and appeared to have had a foreign cross, perhaps of a Berkshire hog; but there was no distinct account of this. The short legs and pricked ears clearly prove them not to be indigenous.

The cows are dry for three months in the year; at that time they have only straw to eat, with a small quantity of meal diffused in the water they drink. They calve in April or May, and, when the grass becomes abundant, each cow is expected to give five pounds and a half of butter weekly; and as the pound is of twenty ounces, this is a large average, and shows good pasture.

Hay is made more carefully and better stacked on this farm than we have seen it on any other. The ricks are square, as they are in England, and hold from forty to fifty tons of hay; they are carefully thatched, and want only the pulling and trimming of the ricks in Middlesex, to vie with them in neatness.

There are seventeen horses kept for farm-work; these are mostly of a French breed, much more active and vigorous than the heavy Flemish horses. A good horse costs from 16*l.* to 20*l.* The cows are mostly Dutch, and cost from 8*l.* to 10*l.* each. They are large and have fine udders. The colour is generally black and white, the horns moderate, and the skin fine. They are not so high as the Holderness cows, but their carcasses are as large; some of them give an astonishing quantity of milk.

This is one of the largest farms in Flanders, and may be considered as an intermediate between the upland farms and the polders. The buildings are scattered and irregular. It was formerly the property of a religious order, but confiscated and sold at the Revolution in 1794. The chapel still remains, but it is converted into a barn. The tenant purchased the land for a small sum compared to its worth, and his son is the present occupier. A small canal winds through the property, acting as a drain for the superfluous water, and at the same time as an easy means of conveying the produce of the

farm-yard, and taking manure to the fields bordering upon it. With a little attention it is not difficult to make this farm produce everything that a frugal Flemish family requires, and enable the occupier to lay up a considerable sum every year. In the hand of a skilful and scientific farmer a fortune might be realized on such a soil in a few years, by keeping up the fertility, instead of reducing it by excessive cropping of the land broken up from pasture; but especially by introducing improved breeds of cattle, and grazing them to advantage.

Not far from Roulers, at Newkerken, there is a small farm of about sixty acres, occupied by a Mr. Verpoort, which is worth noticing. The soil is a good sound grey loam of a moderate quality, the subsoil being retentive; the fields are divided by ditches four feet wide and three deep. Some trees and underwood are planted along some of the ditches but not everywhere. There are no raised banks; the earth of the ditches having been spread over the land. The fields are all small, not exceeding three or four acres each, and mostly of an oblong shape. There was no water in the ditches when we saw it; but it is probable that in winter they are necessary to keep the land dry, as the country is so flat that the water must be a long time in running off. The principal produce on this land is wheat, of which there are eighteen or twenty acres every year. The wheat this year (1837) was sown on land which the year before had been cropped as follows: two acres in beans, four clover, two potatoes, three colza, three flax, and four fallow—eighteen acres in all. Mr. Verpoort, thinks that it might be more advantageous to have more fallow, as the land is very apt to be overrun with weeds, in spite of every precaution, and a fallow now and then is unavoidable. The other crops besides wheat were distributed as follows: three acres in rye and turnips, four oats, five flax, three colza, four and a half clover after flax, two beans, three potatoes, half an acre beet-root, five fallow, ten grass, half of which was pastured, and half mown. These ten acres lie along a low rivulet, and are flooded in winter. What makes this farm worthy of notice is the great proportion of wheat sown, and the variety of other produce, which return at a much longer interval, clover only every nine or ten years.

The whole of the work of this farm is done with two horses. There are thirteen fine cows, four heifers, two or three calves, one colt, and five or six hogs; and all these animals seem well fed. Except a few grains from the brewers, and some linseed cakes, no food is purchased for the cattle, but the farm supplies all that is required. Mr. Verpoort used to breed horses and sell them to English dealers, who came round to the different farms, and bought three-year-old colts at a fair price; but none of them had been there for some time, at which he was disappointed, having a very promising colt eighteen months old, very large and fat, which he thought would be much admired. The colt had been brought up in the stable, like a fatting calf, without much exercise. His feet were flat and wide; and, from good feeding, he was large and heavy. He might at one time have been admired as a heavy dray-horse, but he was evidently very unfit for muscular action; and although as well shaped as most Flemish horses, he was not likely ever to become very useful.

The cows on this farm were milked three times a day for three months after calving, and only twice afterwards. They were fed in summer with clover cut for them and brought into the stalls. Occasionally they were led out into the pasture, but only for a few hours at a time, and never in the middle of the day, when the flies would tease them. In winter they had their brassin, made of turnips and potatoes cut in pieces, and chopped straw, boiled together in a copper, and some linseed cake added to this. Sometimes beans were soaked in water for twenty-four hours, and then mixed with the brassin. The roots were cut by a machine something like our turnip-cutters, but not so perfect. This is the only farm where we have seen a machine, as the spade is the usual instrument with which roots are cut. The chaff-cutter is exactly like our common chaff-box, where the work is done by the hand; and, except where horse power can be applied, or the chaff-cutter can be attached to a mill, the hand-box is, perhaps, the instrument which will cut most chaff in a given time by mere manual labour. The cows are of the Dutch breed, and apparently very good milkers. Mr. Verpoort fattens calves a twelvemonth old, and thinks it more advantageous than if he kept them longer. This young beef is probably more readily disposed of in Flanders than it would be in England. All the labourers on this farm are fed in the house. The women have five-pence and the men eight-pence a day for wages, which makes the food to be reckoned at only three pence per head per day. A labourer obliged to find his own food could scarcely provide himself at so cheap a rate; but the farmer, who has everything from his own farm, finds that it is more economical to feed the labourers, even at that low rate. They have for breakfast bread and potatoes, with tea as it is called, but it is a very weak infusion of that herb, and may be better called hot water with milk in it. For dinner they have a soup of butter-milk and bread boiled in it; after that they have potatoes and a bit of salt pork. For supper skimmed milk or butter milk and potatoes.

The hogs are kept in separate dark styes, and fed on beans and the remnant of the brassin. They are six months or more in fattening, and then not remarkably fat.

The whole farm is in very good condition and clean. The beans are sown in the furrows after the plough; the

produce per acre, on an average, is four quarters of wheat, seven of oats, four of beans. All the roots are consumed on the farm. The land does not suit barley so well as wheat. The clover is usually sown amongst the wheat in spring. Flax is sown after oats, and colza after rye and turnips, which two last always come after wheat. This seems to be the most universal practice all over Flanders.

No sheep are kept on this farm; but a neighbouring farmer, who has eighty acres, keeps one hundred sheep which he fattens, not by pasturing them, but by feeding in the stable like oxen. They have clover cut for them, and sometimes partake of the brassin. They get fat, but whether the flesh is well tasted when they are killed, is more than we can say; the principal object is profit, of which the dung forms an important item.

On another farm situated near Grammont, the property of Mr. Spital, who is a great amateur and breeder of English blood-horses, we found the soil of a still stronger nature, but the cultivation very similar to the last. The name of the tenant is Vander Stude, a sensible and intelligent farmer, who seems to be well acquainted with the practice of the best farmers. He holds about one hundred and thirty acres of land, of which three-fourths are arable and one-fourth pasture. A third of his arable land, or about thirty acres, is in wheat, ten rye, fourteen oats, fourteen clover, ten flax, twelve colza, three beans, three barley, and six in potatoes. There is no fallow, yet the land is clean. It seems not so wet as the last, and this may account for the fallows not being so necessary. He sows turnips after rye or colza. The colza plants are raised on the land which has had clover upon it, with one ploughing. The flax is sown in March, on clover ley also, with only one shallow ploughing, which is given before winter; but the land is repeatedly harrowed before the flax is sown. Everything which is grown on the farm, except wheat, flax, and rapeseed or colza is consumed upon it. His urine-cistern is twenty feet square, and seven feet deep, but he says that it is much too small. There is a smaller cistern under the dung in the yard, from which the drainings are occasionally pumped up, and spread over the dung to accelerate its decomposition. The produce of the land is from four to five quarters of wheat per acre; the same of colza; but this last is worth one-fourth more than the wheat. The flax is sold on the ground at about sixteen pounds an acre, the farmer feeding the labourers who pull it;—this is a lower produce than where the land is differently prepared for this crop.

The stock consists of seventeen cows, five calves, and a few heifers, nine cart horses, and three colts. The labourers are fed and paid exactly as at the last farm. A few hops are grown on about half an acre.

Near Alost we met with one of the smallest farms, which will maintain a family without other work; it was barely five acres. The house was much larger than such an occupation warranted; but it was an old farm-house, and the land had been divided into small holdings, leaving only five acres to go with the house. There was a small orchard of about a quarter of an acre, in which there were some thriving apple and plum trees. The grass under these was good; and the only cow which the man had was led by the wife to graze there for a short time every day, apparently more to give her exercise than for the food she could pick up. The grass seemed to have been cut for her in another part. This cow had cost eight pounds, and the man regretted that he had not had the means to purchase a second, as he could have maintained two very well. Half of the land was in wheat, the other half in clover, flax, and potatoes; so that the clover did not recur sooner than in six years, the flax and potatoes in nine. As soon as the wheat was cut he began to back the stubble about four inches deep with the heavy hoe, and as fast as he got a piece done, it was sown with turnips, after having some of the contents of the urine-tank poured over it: for, small as the farm was, it had its reservoir for this precious manure. Thus a considerable portion of the wheat stubble was soon covered with young turnips of a quick-growing sort, which, if sown in the beginning or middle of August, were fit to be pulled in November and December, and stored in the cellar for winter use. There was a small patch of cameline, which was sown less for seed than for the stem, of which he made brooms in his leisure hours in winter. But these hours could be but few, and only when snow covered the ground, and prevented him from digging and trenching, which was a constant operation; for the whole five acres had to be dug in the course of the year, and as much of it as possible trenched; the soil being a stiff loam of a good depth, which was much improved by trenching and stirring. The milk and potatoes fed the family, with the addition of a little salt pork; for a pig was fed on the refuse of the food given to the cow, and a very little corn, and consequently was not overburdened with fat. Most of the wheat and all the flax were sold, and more than paid the rent, which was not high—about 10*l.* a year without any rates, tithes, or taxes. Incessant labour kept the man in good health, and his wife was not idle. They had two or three young children, one at the breast: but, except the wish for another cow, there seemed no great dissatisfaction with their lot, nor any great fears for the future. They had no parish-fund to fall back upon, not even a union work-house; but had they come to want by unforeseen accidents, they would have found the hand of private charity stretched out to help them.

We have before alluded to a farm of which the occupier kept ewes for the sake of their lambs, which he alone in the neighbourhood fattened for the butchers. His

name is De Keyart, and his farm is situated at a little distance from the neat and flourishing village of Hamme. It consists of sixty-five acres, of which five are meadow, near a little rivulet. The ewes are kept as another farmer would keep cows. He considers the keep of one hundred sheep as equal to that of fifteen cows. He has however, five cows, also; and three horses to do the work of his farm. His rent is about thirty shillings an acre,—a considerable rent, but small in proportion to the price of land, which here sells at an extravagant rate, not paying two per cent. for the outlay. Hamme is in the Waes country, where the cultivation is carried to the greatest perfection. One-sixth part of Mr. Keyart's farm is trenched two spits deep every year, which costs him 30 francs—about 11 5s. per acre. This shows that the land is light, and the trenchers expert, to be able to do it at that price. The first crop on the trenched ground is potatoes, after the land has had twenty tons per acre of good yard dung spread over it. This is ploughed in four inches deep. After a fortnight an equal quantity of dung is put on and this ploughed in seven or eight inches. It must be observed that in ploughing the ground is turned completely over, so that the dung lies under the furrow-slice. The second ploughing does not bring the dung first laid on the surface again; but the point of the share, going four inches under it, lifts it up enclosed in two layers of earth; that which had been above the first dung is turned down upon the last portion, and the four inches last raised are turned to the surface, so that there are two distinct strata of dung, if we may so express it, one four inches under the surface, and the other eight. The advantage of this method must be obvious; and the ploughmen who can execute it should not be despised. Potatoes are planted on a part of this ground, and hemp sown on the remainder. The potatoes are put into holes made with a blunt dibble, and it will be perceived that if they are put in six inches deep, they are placed between two layers of dung, and cannot fail to grow readily in such a rich and mellow bed. When the potatoes are fairly up out of the ground, the earth is stirred and raised around the stems, and liquid manure is poured on the little heaps thus made. It is not surprising that with so much manure a great crop should be produced: but this manure is not all put in for the sake of the potatoes only, but for the flax, which is to follow, for which the dung should be well incorporated with the earth, and the land very clean. For the flax rape-cakes dissolved in urine, or what is preferred—*vidanges*, form the chief manure. Carrots are sown soon after the linseed, if not at the same time. In weeding the flax great care is taken not to pull up the young carrots; when the flax is pulled the carrots are already very forward, and by the help of the urine-cart, soon swell to a good size. After the flax and carrots the land is manured with fifteen tons of dung, which is ploughed in, and wheat sown in October. The next crop after wheat is, as usual, rye and turnips, with six tons of dung. Then oats without dung; and, after them, buckwheat also without manure. The course then begins again with a fresh trenching.—This is the usual course in the sandy loam of the Waes country. But what distinguished Mr. De Keyart's farming is his flock of ewes. Of these he has 100, who are carefully fed in the yard in summer and under cover in winter. All their food is brought to them, and as the lambs are the principal object, the ewes are well supplied with roots and corn in winter. The old ewes are fattened off regularly. The manure is collected carefully: what can be washed into the tank goes there; the more solid part is mixed with earth before it is put on the land. His crops are as those of his neighbours, viz:—wheat about four to five quarters an acre, flax worth 20l. an acre, hemp 12l. In 1837 there were on the farm twenty acres of wheat, eight of flax (part with carrots and part with clover,) three of hemp, four of clover, four of oats, two of buckwheat, fifteen of rye and turnips, two of potatoes (fifty-eight acres in all.) The remainder of the sixty-five acres is pasture and home-stead. The wheat is thrashed with the instrument described in page 19, and the chaff beat off is boiled in the brassin. Here we observed some small stacks of wheat neatly thatched, which might contain eight or ten loads of straw in each. The making and thatching of these is here a separate trade.

In the neighborhood of Tamise there are many small farms chiefly cultivated by the spade, which are perfect models of this species of husbandry. The farm of a man named Everat may be taken as an example. He has eight acres of land, and keeps three cows. The whole is cultivated by himself, with the help of a labourer during three months in the year, who is chiefly employed in trenching and digging. The manure is carried on the land in wheel-barrows. The land is much poorer than on the farm we noticed near Alost. The first crops after trenching are buckwheat and potatoes—the latter with all the manure that can be spared—as many as sixty tons an acre are frequently put on.—By this means the produce will be one hundred and twenty sacks, each of 200lbs. weight, or nearly twelve tons, which is a very large crop on such a soil. After potatoes he sows wheat, then rye and turnips, then flax and clover, wheat, rye, and turnips: this is the regular course, which is only varied by carrots being sown in part of the flax, so that the clover may not recur too soon on the same ground. The cows are kept in stalls with their heads completely separated from each other: each cow has her own trough, and cannot interfere with her neighbour. The partition goes back as far as behind the shoulders of the cow; when she lies down she cannot see any of the others. The food is given to them

from a narrow chamber before them, in which are the troughs for the brassin, so that they may literally be said to feed like pigs. They are cleaned and curried like horses.

The habitation is neat, only one story high, containing a kitchen and two chambers, with a small garret over these. There is a small barn, cow-house for three cows, with a calf-pen. There is a place where a horse might be kept; but a horse would only be profitable if there were more land; at present his keep can be saved. The urine-tank with the privy over it is an indispensable part of every farm-yard, however small. The wheel-barrows, which are used instead of carts, have a large wheel, and the frame is light. They are calculated to carry dung and sheaves of corn. The liquid manure is carried to the field in a tub, sometimes by means of a pole between two men, or a man and a woman, sometimes on the wheel-barrow. It is poured out by means of a bowl, with a long handle, and which can take up liquid and semi-liquid substances equally well. There is an appearance of comfort in these little farms which is very pleasing. Hard work, instead of being here thought an evil or a hardship, is thought essential to the health and comfort of the individual. The children are brought up in industry. It is interwoven with all their associations; and when the young men marry, they find wives who are brought up in the same manner, and are useful helpmates to them. The great ambition of the small Flemish farmer is first of all to be able to set up his children, by giving them what is indispensable in taking a small farm. If he has been very successful, and at the same time very frugal, he will hoard his savings till he can buy a few acres of land of his own. If he can build a house, he then has arrived at the utmost point that the most sanguine man can look forward to. There are many small proprietors who have risen slowly by the labour of their own hands; and their habitations show, by their extreme neatness and the care taken of everything about them, that they feel a pride in enjoying the just reward of honest industry.—*Flemish Husbandry.*

[From the New-England Farmer.]

Rohan Potatoes.

Beverly, 28th Sept. 1839.

MESSRS J. BRECK & Co.—Gentlemen—On the first of May last I planted thirteen hills of Rohan potatoes in my garden (or nursery,) some two, some three eyes in a hill, in all thirty-three eyes, two of which did not come up; the thirty-three eyes weighed less than eight ounces; the ground is a rich loam inclining to clay, with a stiff clay subsoil, moist through the year. I manured with a good shovelfull of strong compost in each hill.

I have this day dug the potatoes from these thirteen hills, and find they weigh one hundred fifty-eight and a half pounds. The eight largest weighed thirteen, and the twenty largest, thirty pounds; the whole filled a flour barrel rounding full.

I planted some on high land, soil loose—also some on high, stiff clay soil: they did well—the poorest averaging less than twelve hills to the bushel, although in both soils they were injured by the dry weather. I am satisfied they require a moist, rich soil, and in such soil they will yield double or treble as much as any other potato I am acquainted with.

Very respectfully, your ob't serv't,
JOSIAH LOVETT, 24.

Pracut, 2d Oct. 1839.

MESSRS J. BRECK & Co.—As there has been so much said about the yield of the Rohan potatoes, I will send you the result of my crop from ten ounces which I bought about the first of May, and gave sixteen cents. I cut out of two small potatoes the eyes and put them into a tea cup of new milk and soaked them three days and then planted them in fifteen hills; but one of the hills was broken down, so that I had fourteen hills only, and I dug them to-day. On account of the mice getting in one of the hills, I think, I lost about two pounds, the remainder I weighed which amounted to eighty-two pounds, some of them weighing 20, 25, 25, and 32 ounces. The bearer of this saw the above. Yours, &c.
HUMPHREY WEBSTER.

[From the New-England Farmer.]

Berkshire Pigs.

MR. EDITOR—Sir—In a letter recently received from a gentleman in the vicinity of Boston, I find the following advertisement, with a copy of a pictorial representation of one of my breeding sows, which requires some notice from me, to guard the public against deception:—“BERKSHIRE HOGS.—W. S. Turner has just received 14 pigs from Albany, male and female, of the Berkshire breed. These pigs were procured of Bement & Glauson.
Framingham, June 29th, 1839.”

Now, sir, as regards myself, I deny in toto, of having ever sold any Berkshire pigs to W. S. Turner, or any other person in that town. If Mr. Turner purchased them from me, he has some written evidence of the fact, either in a bill, certificate, or letter.

I called on Mr. Lossing, (not Glauson,) who peremptorily denies ever having sold any pigs to a person by that name.

Mr. Lossing also informed me that late in the spring or early in the summer, a person from the east called on him for Berkshire pigs; but having none except those that were engaged, inquired of him if he knew where he could find them, or some that “resembled the Berk-

shire”!!! And he “was not very particular—the runts would answer, if he could obtain them at a low price.” “Dunder un blixum!” a Dutchman would exclaim, “dese tam Yanks peats de very tuyval.”

Not long after this, Mr. L. was informed that a person going east with a lot of pigs and offering them for sale, exhibited a certificate with his name attached, as an inducement to purchase. This Mr. L. declares a forgery.

In another letter lately received from a gentleman near you, I am informed that “most of the drovers who pass through ***** where I keep my swine, have pigs which they call ‘pure Berkshire,’ at least a few in each drove, and the invariable story is, that the pigs were got by your boar, out of some sow in your vicinity, by which means they injure the true breed.”

Now I am not at all surprised at this, for a man living near me does not hesitate to sell half breeds for the pure blood Berkshire; and, I am sorry to say it, there are others in this vicinity, who would do the same, should an opportunity offer.

Mr. T. for aught I know, may have the pure Berkshire pigs; and had he not published that he procured them of me, I should have let it pass unnoticed; but having used my name without my authority, I deem it a duty I owe the public as well as those who have purchased of me, to make the above exposition.

Respectfully, Yours,

CALEB N. BEMENT.

Three Hills Farm, Albany, Oct. 12th, 1839.

Report on the value of Bone Manure, in comparison with ordinary Farm-Yard Manure.

BY THE HONOURABLE CAPT. W. OGILVY, ARLIE CASTLE.

[The thanks of the Highland Agricultural Society and the honorary silver medal were voted by the directors to the author of this paper.]

MR. WATSON of Keilor, introduced the use of bone-manure into Strathmore, having seen it used in England. I am not certain in what year he began to make experiments with it, or to employ it extensively, but I remember well that the great deficiency of farm-yard dung in 1827, (consequent on the almost total failure of the crop of the previous year) first induced me to try four acres of turnip without other manure, sown with 15 bushels of bone-dust per acre, which I obtained from Mr. Watson: it cost 3s. per bushel, or £2. 5s. per acre. The crop of turnips on these four acres was at least equal to the rest raised with farm-yard manure; but as the whole of the turnips were pulled, and the land received some dung before the succeeding crop, much stress cannot be laid on the circumstance of the following white crop and grass being good.

Next year, 1828, encouraged by the former successful experiment, eight acres were sown with turnip, solely with bone-dust; the soil a light, sandy loam; the subsoil gravel and sand, coming in some places nearly to the surface, which is very irregular, but in general has a south exposure. This field had been broken up with a crop of oats in 1827, after having been depastured six years principally by sheep. The quantity of bone-dust given was 20 bushels per acre, and cost 2s. 6d. per bushel, or £2. 10s. per acre. The turnip-crop was so heavy, that, notwithstanding the very light nature of the soil, it was judged advisable to pull one-third for the feeding cattle, two drills pulled, and four left to be eaten on the ground by sheep. The following year, 1829, these eight acres were sown with barley and grass-seeds, and the produce was 57 bolls 1 bushel, or 7 bolls 1 bushel nearly, per acre, of grain, equal in quality to the best in the Dundee market, both in weight and colour. Next year, a fair crop of hay for that description of land was cut, about 150 stones an acre; and though I am now convinced that the field should rather have been depastured the first year, yet the pasture was better than it had ever been known before for the two following seasons, 1831 and 1832. It is worthy of remark, as a proof of the efficacy of the bone-manure, that in a small angle of this field, in which I had permitted a cottager to plant potatoes, well dunged, and which, after their removal, was included in one of the flakings of sheep, and had (one might have supposed) thereby had at least equal advantage with the adjacent bone dust turnip land, both the barley and grass crops were evidently inferior, and this continued to be observable until the field was again ploughed up. A very bulky crop of oats has been reaped this season, probably upwards of eight bolls per acre, but no part of it is yet thrashed.

Having detailed what may be considered a fair experiment during the whole rotation of the above eight acres, I may add, that turnip raised with bone manure, and fed off with sheep, has now become a regular part of the system on this farm; 15, 20, and, last year 25 acres were fed off, and invariably with the same favorable results, with the prospect of being able to adopt a five-shift rotation, and to continue it without injury to the land. Every person in the least acquainted with the management of a farm, of which a considerable proportion consists of light, dry sandy loam, at a distance from town-manure, must be aware of the importance of this, from knowing the expense at which such land was formerly kept in a fair state of cultivation; indeed, the prices of corn for some years past would not warrant the necessary outlay, and large tracts of land, capable of producing barley little inferior to that of Norfolk, must speedily have been converted into sheep pasture, but for the introduction of bone-manure.

NOTE.—For the last four years, 25 bushels of bone-dust have been given to the acre: the price this year was 3s. per bushel, or £2. 15s. per acre.

Of the Fallow.

The fallow defined—Its effects.—Similarities to elucidate the subject.—The soil mechanically retains, and chemically combines with air, water, and vegetable and animal manures.—Whence the source of fertility.—Remarks on the practical parts of the fallow process.

By fallowing, is meant a repeated mechanical moving and pulverizing of the soil, to a depth of eight, ten, twelve, or more inches, with the plough, the harrow, and the roll; and permitting, during the process, which usually occupies the spring and summer months, no vegetables to grow.

This mechanical process usually commences at a dry time in the autumn: and the land, from the consequent unevenness by the furrowing of the plough, presents a large surface to the frosts, snows, sun and weather of the succeeding winter. The effects from such an exposure, shiver the most stubborn clods, and with no cost to the husbandman.*

In the spring, the surface is harrowed and dressed down; the weeds picked off or destroyed; and the field again submitted to the plough; when the under side is turned up to the heat and moisture of the sun and showers, and to the drying winds. This exposure should be continued, if the weather be favorable and time permit, till quite dry, then to have a shower and get dry again, with the surface in the roughest state; that the effects from the alternating extremes of heat, moisture, and dryness, (the great decomposing agents of Nature), upon the largest possible surface, may the more speedily render the clods tender, the proper opportunities being taken for the operations of the harrow and roll.

Another ploughing, and perhaps dressing succeeds: then a fourth; and probably a fifth; when the duties and object of the husbandman are performed and accomplished.

A soil that has been so treated and exposed, even if very stiff in its nature, and poor when the operations were commenced, is found greatly improved in its tenderness and in its powers of fermentation, consequently in its fertility; and the benefit arising from the fallow, is in proportion to the time and labor bestowed, and the interval before a crop is again taken.

Naturally good soils need but a short period for their restoration, because they are readily brought to a pulverized state, and of course proportionally soon improved in their powers of fermentation.† Whereas the stubborn and almost barren require at least a year, or indeed better if two years are devoted to a well directed cultivation, before an equal degree of pulverization and powers of fermentation can be accomplished.

From the tendency of the fallow to render light lands close, and stiff lands light, it favors the approximation of the two different soils to the same state of fertility.

Having gone through a detail of the particulars of the mechanical part of the fallow process, its effects are the next object of attention.

The balance of affinities, or the equilibrium of the particles of matter composing the soil, are very essentially disturbed by the operations of the plough and harrow; indeed so much so that scarcely two particles, it may be said, that were in contiguity before the commencement of the ploughings, are to be found together at the conclusion of the operation; also the particles of stale air and moisture that were within the interstices of the soil at first, together with those particles in slight combinations with the soil itself, have escaped, and their places are supplied with fresh; consequently every way favoring fermentation in a high degree, as well as being rendered more easily permeable in all directions for the infant roots of future plants.‡

Now a soil, before it is broken up by the plough, is—as to its interior particles, and the air and water that may occupy the few cavities—in a comparatively quiescent state, because the various particles have entered

into a chemical union with each other. That is to say, the materials of the soil are saturated with those substances they could then combine with; and therefore would so continue to remain, if the subsequent variety of the seasons did not tend in some measure to destroy the equilibrium.

A few examples may contribute to the better explanation of the above, and also materially assist future investigation. They are the following:—

What is the use of stirring or shaking two liquids when put together, or one or more liquids with one or more dissoluble solids? The object is, to facilitate a chemical union with each other, of their respective atoms which the occasional stirring effects, by removing one portion after the other of the atoms of one liquid, when they have been sufficiently long in contact to perfect a union with a portion of the atoms of the other liquid or dissoluble solid, till all the combinations of which the nature of the materials are capable of entering into under their present circumstances, have been completed.

Let a sponge, or a piece of cloth, be thrown into any drying liquid that will combine with the materials of the sponge or cloth, and there permitted to remain awhile. The first effect will be, that every pore of the sponge, &c. will be filled with the liquid, and a combination with the dye, immediately in contact with the sponge, take place when all will be again quiet. If the dye is too diluted to give the requisite colour at first, the sponge is left undisturbed, and the liquid also; for a considerable time, the shade will not be improved because a saturation has already been effected with the sponge, and the dye in its immediate contact; but if the sponge, after having remained a certain time be taken and squeezed, then returned again into the liquid it will absorb a fresh quantity of the dye by fresh particles being exposed to its surface, when a second coat will be formed; and so on with a third and a fourth, at every alternate immersion and squeezing, till the requisite shade be accomplished. In this manner any degree of shade of a dye may be communicated to a piece of cloth, or other material capable of taking it up, in a much shorter time than in any other way.

Again, how does Nature effect the oxidation of the blood in the lungs of animals? It is upon the same simple principle: for what does she do to gain this important end? Let us for a moment observe ourselves in this instance; we inhale a quantity of air into our lungs, and then immediately after exhale another quantity; a moment's pause ensues, when the process is repeated again and again, to the end of our existence. Now the lungs are a body somewhat like a sponge, but composed of an infinite number of ramified tubes, by which means an immense surface is exposed to the air.

The air that is inhaled is the atmospheric, which is composed chiefly of nitrogen and oxygen. The air exhaled is different, being partly nitrogen, partly carbonic acid gas, with water in a gaseous form. We see, then, that the carbonic acid gas has been substituted for the oxygen, and if respiration be suspended, the air, just fresh received into the lungs, cannot yield up more than its quantity of oxygen, if continued within them for the space of an hour; and thus a balance, or equilibrium would be established; consequently, to gain more of the oxygen, the stale air must be expelled to admit its place being occupied by a fresh quantity of atmospheric air. This is effectually done by the moment's pause after exhalation, as the pause admits of the expired air escaping and ascending out of the way, having been rarified by heat, and rendered lighter than the atmosphere, and thus making a pure entrance for the inhaled air.

Another simile, and a familiar one, may also be brought forward. It is of a fire that wants stirring, which exactly resembles a piece of land permitted to remain awhile unmoved. For the fire is becoming stale, or a balance of affinities is forming, or, properly speaking, the surfaces of the fuel, immediately in contact with the air, formed a combination with the air whilst the heat was sufficiently strong to effect it; but by the hollowness consequent on combustion, from the consumption of a portion of the fuel, the particles in a state of ignition become more and more distant, when the heat proportionally declines, till falling below the power of decomposing the air, which now only gets rarified in its passage through the embers, and thus robs them of their remaining heat, when the fire soon goes out. If, however, it be stirred in due time, and with judgment, whilst the heat is sufficiently powerful to decompose the air, a large exposure of fresh, or unsaturated surfaces and particles are presented to the current of fresh air, together with the approximation of the parts in combustion which, by consolidating the heat that was before distantly divided, materially prevents the further loss of the same, and consequently favors immediate ignition. The fuel being put closer together, is however, left sufficiently porous for the free circulation of the air, which accordingly enters into chemical union with those particles that are capable of receiving it; when the oxygen of the air, from a gaseous form, assumes a more condensed one with the fuel, the latent heat is in consequence given out, and shows itself in the general redness; should hydrogen be present, as in coal or wood, it unites with this gas, and becomes cheerily visible in the flame.

To further elucidate this meaning respecting this balance of affinities, and the advantage gained by moving the soil, the reader is requested to inspect a dung-mix-hill that has been made two or three months. This mix-hill will be found, if trodden down hard by the horses and carts during the time of making, or the interior defended from the outward air by a covering of earth, in a comparative quiescent state; and why? Because the

fermentation has gone as far as the fresh air contained within lasted, when the balance of affinities takes place. Now let this heap of manure be turned regularly over, and each spit broken and shaken in pieces, after the manner of making a cucumber bed, and spread about to prevent the same two pieces that were together before, from coming in contact again; the uncombined stale and gaseous moisture will then be facilitated in their escape; and from having less affinity for the materials of the manure than the fresh air and gaseous moisture to which the materials are now exposed, will readily give place to them, when a fresh and strong fermentation ensues; and this arrives at a great height after some hours, or a few days, and so continues, till the fresh store of air or moisture, and the new position of the particles of the manure are exhausted and saturated, when all is quiet again.

When a soil is broken up by the plough and highly pulverized, this essential effect, fermentation, is gained which cannot take place without the presence and consequent decomposition of air or water, or both. This being the case, these two questions necessarily arise. The first; is air always present in the soil? The answer is, that it is; because it is impossible that a pulverized and porous body, such as the soil, which is always exposed, can maintain a vacuum in its innumerable cavities. The next respects the presence more or less of water in the soil. The same answer is again given, that it is present. The rains are the occasional contributors, together with the dews; and the constant interchange of the air, charged with moisture, ascending and descending through the upper part at least of the pulverized soil, by the influence of the interior fermentation, the day's heat, and the night's chill, leaves behind in this climate, a quantity sufficiently great to keep the soil moist even in the driest seasons.

Of the two former there is a positive certainty: and of the latter, the ploughman's experience equally satisfies him of this fact; but it is not discoverable in unmoved land, which is in consequence generally hard, dry, and cracky, during the summer months.

The next step to be taken in this inquiry is, to ascertain whether the soil, by cultivation, will mechanically retain, and chemically, or by cohesive attraction, as Sir H. Davy says, combine with air and water, and any gaseous materials.

What has been shown already relative to the porous nature of the cultivated soil, equally answers in this case. For having proved that the air is more or less present and diffused through the soil in proportion to its improved state; then this presence of the air denotes also its mechanical retentment.

The next investigation relates to the capability of the various soils chemically combining with air and its component parts, and the products of decomposed vegetables and animal manures, beginning with the latter.

When vegetable and animal manures are applied to the soil and buried by the plough, they undergo fermentation, and gases of various natures are evolved; these, passing into the finely pulverized earth, become arrested in their nascent state by the numerous particles of the same, and are so strongly retained, as to exhibit their presence for a series of years afterwards (although every part of the manure appears gone), by the superior crops that follow, and which gradually consume them. If these gases were incapable of chemical union, then from their specific gravity being so far inferior to that of the soil, they must effect their escape in a greater or less degree, but more particularly so at every successive ploughing; consequently with the proportioned impoverishment of the land according to the frequency of the operation. However a long age of experience has no proof of such results; therefore the detainment of the several gases for such a period must be more than mechanical, consequently then, is chemical.* The like reasoning applies to atmospheric air.

The presence, or mechanical suspension of water in soils, has been before shown; and its chemical or cohesive combination with the particles of the earth, is on the same principle as water with lime; though the union is not so strong; but the strength of the union, and the affinity of the soil for water, are increased by cultivation.†

* This is a strong practical fact, that the particles of the soil have a superior affinity for the component materials of animal and vegetable substances than the atmosphere: if true, the soil never can be so injured by exposure as some persons have imagined: indeed facts are every way in favor of exposure, so much so that it is absolutely necessary from the essential benefit the land derives by being allowed to breathe, to exchange its stale bad materials for those that are fresh and good.

Meat, as of a dead sheep or horse, is sweetened and made tender by being buried in the ground for a day or so, for the soil commences a digestive process, and imbibes and retains all the putrid effluvia as it generates. Dogs are, by their instinct, aware of this when they bury a bone, otherwise, from the acute smell of their own species in general, their store would be easily discovered, if the least effluvia escaped during that time, and the treasure robbed; but the occurrence is very rare.

† A portion of soil being taken from a cultivated fallow, and compared with an equal quantity from an exhausted soil close by, and with corn in ear growing upon it, the differences were; that the fallow soil retained moisture longer than the exhausted soil, and when both were equally dried, the former regained moisture from the air quicker than the latter—a most important fact. Again; a thermometer was inserted three inches into a soil cultivated a few hours before, and then put the same depth into the same soil close by, which had not been so recently moved; the result proved

* If it were practicable to expose land to the effects of the winter season, more than is generally done, by one or two extra ploughings during that period, the advantage gained in fertility would be considerable. But, the fear of kneading the land whilst wet, and the impossibility when frosty, sets all attempts on any large scale at defiance. In a garden, a bed may be dug and re-dug during slight frosts, and thus fresh surfaces and clods turned up to the weather, when the great benefit of the winter's exposure and pulverization can be obtained; and indeed is so by industrious gardeners.

† Fermentation is the struggling of different affinities of materials in contact with each other, to enable their respective proportions to continue at rest: or the struggling of various particles of matter for the balance of affinities. It is one of the chief objects of a well directed cultivation to continue this fermentation, having the seasons and the power of vegetation to assist, lest vegetation should be exposed to a too long continuance of the balance of affinities.

Land dries much sooner when moved, than when left untouched. Just harrowing the surface dries the soil rapidly, the weather being fine; and why is this? It is because the water and air in the unmoved soil is in a comparative state of rest or balance; and having the same surface exposed to the sun and winds for some time, they at length saturate the particles of the soil exposed to their influence, consequently at last excite little fermentation: when, however, the surface and clods are disturbed by the harrow or plough, every part is fresh to both sun and air, fermentation becomes strong (proved by a thermometer) and dryness rapidly ensues.

‡ A gardener, whilst digging, always takes care to break each spit in pieces, both on the top and in the trench. He does this, knowing from experience that this extra labor will be amply compensated for, by the proportioned superior produce of the next crop.

When there is an excess of water after saturation, it evaporates in dry weather, and forms a mud, when very wet.

Before terminating this part of the inquiry, the following well known fact is adduced in support of the argument; that aration alone is capable of fertilizing land. Whence is the source of such fertility? We know of none; if we exclude the air and water, and the improved digestive powers of the soil, saving the pulverization; which, indeed, without these would be next to nothing; therefore these three must be pronounced as the real source, which, under the influence of the sun and seasons, yield to the hand of industry their hidden treasures, and fixes them in the soil, to be gradually taken up by the future vegetation.

This satisfactory conclusion may at length be drawn, that the particles composing a well managed soil are capable of mechanically retaining and chemically combining with air and water, and their principles; and also with the various products from vegetable and animal manures. And this capability of the soil is to be improved, strengthened, and perpetuated, by well-directed cultivation; thus proving not only the use, but the necessity and importance of cultivation.

To dismiss this interesting chapter without a few remarks on the practical parts of the fallow process would be incorrect, and to do so it is necessary to review some of the operations, and make comments as we proceed.

The commencing the operation for the fallow in the dry part of the autumn is highly necessary, and the advantages are these: that the plough presents an entire fresh and somewhat dry surface to the influence of the succeeding winter, instead of the same which had been before long exposed during the preceding summer, and was in consequence become stale, therefore the soil would not derive the proportion of benefit it ought to do from the ensuing winter's frosts, rains, and other changes, which however will be gained by the particles of the now fresh turned up surface. Again, the land being broken up as dry as it will plough, and never mind how rough, the surface not only presents a greater number of particles to immediate exposure, but being at the same time rather dry than otherwise, the winter's fresh rain and snow enter more readily and generally into every part of the clods, and after the manner of lime, crumbles the same to powder. Whereas if the same land be ploughed up wet so as to knead by the horses, the cavities of the soil, from this cause, being already filled with water, like the sponge, can receive no more, and therefore from the approaching winter there is no chance of it to be again moved or become dry. The fresh rains and snows which may fall, cannot penetrate through the clods, every interstice being already pre-occupied by the former moisture; and this same quantity thus locked up, as the liquid dye in the sponge or cloth, and the air in the lungs, when it has parted to the soil all that it is capable, the balance of affinities is established by the saturation; and no further benefit is to be expected, except upon the mere surface, where the frosts and sun may occasion a dryness. Such land, when ploughed in the spring, will, as the expression is, cut up whole furrow, instead of being in the fine and tender state of the land that was ploughed dry, and now again ploughed in a dry time also.*

With respect to the burying all the stubble and weeds; these should always be done when practicable, and if done, they will, during the exposure of the winter season, particularly in very wet and stiff land, keep the same open and porous, and thus, not only make it more easily divisible by being blended with the soil, but assist the running off of any superfluous water by the hollow-ness which the stubble naturally occasions, at the same time admitting a circulation of the air; besides, whatever of the stubble and weeds goes to decay, fertilizes, lightens, and improves, at no expense.

If a person follows the plough in the spring whilst stirring that land which was ploughed in the autumn, where the stubble and weeds were buried, he will see that the land, in turning over, separates readily into pieces where the stubble is intermixed, and thus materially assists in the commencement of its pulverization. This stubble, on examination, will be found in a black-

that the fresh moved soil raised the quicksilver at least 2° higher than the unmoved, and selecting a spot just manured and fresh moved, the difference of temperature was found greater.

Cultivation increases the powers of decomposition and composition of the soil, or fermentation, denoted by the proportioned increase of the growth of plants; likewise by the more rapid decay of any vegetable or animal substances contained therein. But vegetables growing in a soil have the tendency to lower the temperature of the same, caused, it is conceived, partly by their shade, and partly by their very act of growing, which by transforming the more solid and liquid manures about their roots into a rarer or gaseous form, occasions the difference, from the consequent consumption of a portion of the surrounding heat taken up in a latent form during the rarefaction of any of the above substances.

It is also known, that fish-manure ploughed in early for a fallow, last longer than when ploughed in for a crop on an exhausted season. Thus proving again that cultivation strengthens the chemical powers of the soil. On the same principle farm-yard manure will go further when put on a fallow.

* The best remedy, when the season and time obliges the land to be ploughed wet, is to plough the furrows up on a hedge as much as possible, that the water may drain away the easier, with a greater surface being thus left for the frosts, sun, air, &c. to operate upon. Land should never be ploughed flat when in a wet and kneady state.

ened and mouldy state, like manure, with the green weeds quite decayed, excepting the hearts of some of those plants that are of the biennial and perennial kinds; all this proceeding from the fermentation which ensued during the changes of winter, aided by the easy decomposable nature of the substance buried, and taking place too at a period when vegetation is at the weakest; in consequence, the decay of the weeds, rather than their vegetation, followed, to the greater benefit of the land. Whereas, if the weeds had been suffered to remain unmolested all the while, they would, at least, continue alive, and if a mild winter, have grown.

The advocates for not ploughing in the autumn, say, in their defence, that such lands plough up more tender and dry in the spring. Let this be granted, because they may argue, that the under soil, not having been disturbed by the plough, becomes porous as the roots of the former plants decay, as well as retaining uninterrupted the old water-courses and cracks, which were formed the preceding summer, and thus let off the winter's rains and snows; also, the old beaten down surface arrests a part of the water which is then dissipated by the sun and winds that follow. In answer it must be observed, the object of the husbandman is not only dryness, but an improved fertility by the winter's exposure, and which cannot take place in an unmoved soil, according to what has been already stated, and likewise, because the channels and cracks, similar to a fire, become hollow, and want stirring; having had the particles of the earth lining their surfaces so long exposed to the summer's rain and air, they thus become effectually saturated as far as they were capable of receiving, and in consequence, little or no after benefit can be gained from the succeeding winter's rain and snow. Such reasoning as the non-autumnal ploughers use, only applies, if with any force, against those farmers who are in the habit of ploughing up their land at that season of the year when really too wet.*

The spring tillage for the fallow comes next; but before entering upon particulars it may be asked, which of the four seasons are those best calculated to crown our operations with the greatest success? The spring and early part of the summer are decidedly to be preferred, the land having of course been previously rough ploughed up in the autumn. This opinion is thus defended.

In the first place, let this question be put, when is vegetation the strongest? Why, certainly during the spring and early summer months; then of course must be the time of the greatest chemical changes with the soil, air and water; therefore, the more the land is exposed to the influence of the sun, air, and rain, by cultivation at this important time, the greater will be the increase of fertilization.

To account for all this is the next question, and it is thus attempted. That contrasts and extremes, acting alternately on matter, produce in general the greatest effects, by weakening and destroying the balance of their affinities; as is instanced in the familiar case of hot water breaking a glass that is cold, and cold water breaking a glass that is hot. But the continuance of such contrasts for any length of time in either extreme, preserves the equilibrium of their particles unaltered,† as for example, paper when dry, and the piles of bridges that are always wet. What have we then so favorable to the overthrow of the chemical affinities of the soil? A winter, the very extreme in its nature to the preceding summer, as being a period overcharged with moisture and cold, in opposition to its dryness and heat. As these extremes of wet and cold continue for about six months, the very active energies of vegetation, and of composition and decomposition, are not to be wondered at, when the opposites, heat and dryness,‡ are increasing in their powers in the spring and early summer months, till the sun has reached its greatest height and limit.—The rays of the sun afterwards, being on the decline, become daily less and less powerful, therefore less and less effect must be produced, and this explains the cause why the vigour of vegetation is then seen to cease,§ and with it we naturally infer, the fertilizing effects, as respects composition and decomposition on the soil also, with the consequent tendency at the same time to a rest in their several affinities; though afterwards the autumn rains come, and vegetation is seen to revive a lit-

* Land improves very slowly indeed when suffered to lie unmoved; if otherwise, the not cultivating of it would of course be the cheapest plan; but facts are the reverse, and the cause easily explained. Although the unmoved land receives the effects of the same sun, the same rain and winds, yet little fertility is left behind, because the surface particles are early saturated, when whatever comes afterwards is lost to them. No extra heat and chemical powers are communicated to the soil by cultivation, no change of position of the particles of the soil relative to each other takes place, and from being deficient of these essentials, no extra fermentation can ensue, consequently, its improvement in fertility must be proportionally small; and this is borne out by facts. Therefore, every omission of cultivation, if a gain in labor, is a loss in fertility.

† The preservation of fish and meat preserved in ice is the result of the strong balance of affinities.

‡ Meat preserved in salt, fruit preserved in close stopped jars and bottles, are instances of the same kind.

§ That is to say, though more rain is said to fall in summer than in winter, yet it quickly vanishes again, and by its evaporation assists, no doubt, in the decomposition.

¶ Upon the same principle may be explained the cause why the morning sun has more effect upon vegetation than the afternoon.

tle, yet winter soon follows, and seals up all with its frosts.

OF THE SPRING TILLAGE.

Should the land be extremely foul, harrowings and scarifyings,* with pickings and burnings, must be had recourse to whilst the land is in the driest state, and all completed, if possible, before the next ploughing. The plough may then be introduced and let into the land the greatest depth required, that the largest possible mass of soil may gain the benefit of the future exposure and tillage. With a field fairly clean the ploughing may at once commence, as the surface will be quite tender, and sufficiently pulverized without the aid of the harrows.

If the fallow is to be manured, no better time can be chosen than the present to be now ploughed in—but more of this hereafter.

During the early spring tillage, be careful to knead the land as little as can be avoided, and, as the season advances, it is best not to suffer a horse's foot or a cart-wheel on the surface until the soil beneath is too dry to knead; because all the former labor will be in a great measure lost, whilst the time is too short to do it over again. Nevertheless, should necessity oblige a husbandman to plough his land before it is fit, as he is to expect extremes of dry weather instead of the winter's rain, the clods may get perfectly dry, and the spring showers falling afterwards would re-pulverize them.—The main object is to let the clods be quite dry, when, if rain does not fall, they, being returned to the bottom of the furrow by the next ploughing, will gain sufficient moisture to dissolve and pulverize them. In fact, the plan of always ploughing in, when possible, a dry, dusty surface, instead of a wet one, is to be preferred, because the extremes of dryness of the former surface being turned to the bottom of the furrow, where there is always moisture, which being absorbed in an equal degree by the dry soil occasions a rise of temperature readily detected by a thermometer, consequent on the union with the moist earth and with the air contained within the interstices of the clods. But when the top surface is ploughed in wet, little or no interchange can take place, for the reasons before adduced.

(Remainder in our next.)

* Scarifying is very well for cleaning land, but never will answer as a substitute for the plough; because, a scarifier is unable to bring up and turn over the fresh soil of the bottom to the top for exposure, like the plough; consequently, the top surface soon getting saturated, gains no more benefit from the sun, air, and rain, however often the same surface may be moved.

On following the plough, whilst preparing a bean land for wheat, much of the stubble of the barley crop ploughed in for beans was observed undecayed, although the last crop, beans, being a drilled one, was horse-hoed at least three times. Proving, that the effects of superficial cultivation do not descend with much influence below the actual operation; also proving, that the lower materials of the soil must be actually moved, and brought up to the sun, air, &c. before the requisite strong fermentation and benefit can ensue.

† A clayey soil when rammed quite close for the bottom of a pond, will remain in a perfect state of the balance of affinities for more than a century; for if it did not, it would soon lose its property of holding water. Now land of a clayey nature in a field will be affected similar to the clay at the bottom of a pond, if trampled on by horses in a kneady state; and the evil will be proportional to the purity of the clay.—If it is full of manure and foreign substances, the kneading will go off in time, by their fermentation. Pond makers are aware of this fact; and therefore carefully eject all vegetable and decomposable substances from their clay before ramming it down, knowing that they will be the means of destroying all their present labors, by breaking down the texture of the clay, and thus cause the pond to leak after a few months or years.

Young Men's Department.

Chemical Catechism—Chapter IX.

[From Parke's Chemical Catechism.]

OF SIMPLE COMBUSTIBLES—continued.

What is the substance you call carbon?

The base of common charcoal, divested of all impurities, is known to chemists by the name of CARBON.

What is the most striking property of pure carbon.

Carbon is capable of crystallization, though not by art; and in that state it is called diamond.(1)

(1.) The diamond is chiefly found near Goleonda in Asia, and in Brazil. It always occurs crystallized, indeed, if not, it would be carbon and not diamond. See a note respecting the diamond under the article Steel, in the chapter on Metals; where you have an additional proof that diamond is simple carbon. It is wonderful that Newton, who had no chemical means of examining the diamond, should have conceived the idea of its inflammable nature. See Additional Notes, No. 35.

Mr. Tennant has satisfactorily shown that the diamond is pure carbon, carbon crystallized. See *Philosophical Transactions* for 1797. The diamond is the hardest substance in nature, and one of its rarest productions. From its hardness it is employed for sawing and boring the hardest stones. It is a conductor of electricity, though charcoal is a non-conductor of that subtle fluid. "Diamonds are usually found in an ochreous yellow earth, under rock of granite; they are likewise found detached in torrents, which have carried them from their beds. The sovereigns of India reserve the largest, in order that the price of this article may not fall. Diamonds have no brilliancy when dug out of the earth, but are covered with an earthy crust. Diamonds are also found in considerable numbers in the island of Borneo. Whenever the mines are searched for them, an overseer attends, and watches

What are the other properties of carbon?

Carbon has the property of de-oxidizing the oxides of metals and other combustible substances (2), and with this view it is often used in the arts. These purposes are effected by means of fire, the carbon uniting to the oxygen to form carbonic oxide, or carbon acid (3); and the metal thus deprived of oxygen, is left in its pure state.

Does carbon enter into any other combination?

Carbon is found in large proportions in bitumen, petroleum, and pit-coal; it seems to be ready formed also in all vegetables, and in most animal substances; and combined with oxygen, enters into the composition of a great variety of the products of the mineral kingdom.

What is the proportion of carbon in pit-coal?

Pit-coal vary in quality, according to the different proportions of carbon and bitumen which they contain (4); but carbon is the chief ingredient in all. What are called *staly* coals hold also from 10 to 40 per cent. of earth (5); and some coals likewise contain a considerable quantity of the sulphuret of iron, known by the name of *martial pyrites*.

What is the use of carbon in the vegetable kingdom?

Carbon is not only a component part, but it forms nearly the whole of the solid basis of all vegetables, from the most delicate flower in the garden to the huge oak of the forest (6).

the workmen with great care, that the largest may be secured for the sovereign prince. Notwithstanding, they are frequently conveyed away clandestinely by the workman, who will swallow them." Von Wurmb's *History of Bornea*.

The usual method of calculating the value of diamonds, is by squaring the number of carats, and then multiplying the amount by the price of a single carat: thus, supposing one carat to be worth £2, a diamond of 8 carats is worth £128 being $8 \times 8 \times 2$. A carat is four grains. *Polished diamonds*, without blemish, are worth about £6 per carat.

In the year 1772, the empress of Russia purchased a diamond that weighed 779 carats, nearly 6½ ounces troy. She paid the immense sum of twelve tons of gold for it, and granted a pension of 4,000 roubles per annum to the vender.

(2.) Charcoal has such a powerful affinity with oxygen, that in a proper degree of heat it will abstract it from all other substances.

(3.) The merit of the discovery of carbonic acid is due to the illustrious Dr. Black of Edinburgh. Those who have not been in the habit of reading the early chemical writers can have no idea of the service which this great man has rendered the science by his very accurate investigation of this compound gaseous substance.

(4.) The immense quantity of pit-coal which is deposited beneath the surface of the earth is truly astonishing, and affords abundant matter for reflection. This kind of fuel is consuming day after day in incalculable quantities; and so great is the store, that there is no probability of its being exhausted for ages yet to come. Supposing the formation of pit-coal to be owing to the deposition of vegetable and marine animal matter, the same process must be still going on, and the inmost recesses of the present seas may be receiving the materials of fuel for the inhabitants of new continents in the most remote periods of the world. The wise economy of the great Author of Nature, in this constant circulation of the elements of matter, is equalled by nothing but his own infinite beneficence:

"Who, not content

By one exertion of creative power
His goodness to reveal; through every age,
Through every moment up the tract of time
Adjusts, accommodates, and blesses all."

(5.) There are four species of coal, very distinct from each other: the *graphite* of Werner, or plumbago; the *anthracite*, the *jet*, or pitch coal; and the common coal.

One hundred parts of plumbago contain, according to Berthollet, about 90 per cent. of charcoal and 10 of iron. That of the best quality, and which is found at Keswick in Cumberland, is used in making pencils. Plumbago has also been found lately in considerable quantities in an estate about 7 or 8 miles north of the town of Ayr in Scotland, and in some parts of that neighborhood it even occurs at the surface of the ground.

Anthracite, or anthracite, is distinguished from other coal by burning without flame. It is composed of 64 charcoal, 33 silica, and 3 parts of iron.

Jet occurs in Scotland, at Whitby in Yorkshire, in Bavaria, &c. and in France near the Pyrenees. At the latter place more than a thousand men, it is said, are constantly employed in fabricating it into ornaments of dress, drinking vessels, rosaries, &c. It is composed of bitumen and charcoal: 76 parts charcoal, 22 parts bitumen, and 2 parts earth.

Common coal is composed of bitumen and charcoal in different proportions, according to its quality, and the places whence it is procured. At Newcastle-upon-Tyne, martial pyrites are often found mixed with the coal, in such abundance as would render the coal unsaleable; but persons are employed to pick out these pyrites and remove them to a proper situation, where in process of time they become acidified, and fit for the production of green vitriol. See an account of this process in Chapter X. under the article Salts of Iron. This species of coal, when, in contact with water, is apt to be decomposed, and to burn spontaneously. Ships at sea have sometimes been suspected to have been lost by this means. His Majesty's ship *Ajax*, of 74 guns, took fire a few years ago in the middle of the night on a station in the Mediterranean, and no cause for that dreadful catastrophe has yet been assigned.

(6.) It has been discovered that air which has been spoiled by the breathing of animals is peculiarly fitted for the vegetation of plants; and no doubt this is owing to its containing a larger portion of carbonic acid. By the analysis of soils it has been proved, that of all the substances found in the mixture of earths which constitute a soil, calcareous earth contributes most certainly to its fertilization. An interesting account of some experiments on manures, by Mr. Arthur Young, may be seen in the *Retrospect of Philosophical and Chemical Discoveries*, vol. 1. page 113. There is an ingenious memoir

If carbon forms so large a part of all vegetables, what occasions that infinite variety which we observe in the vegetable creation?

We are in a great measure strangers to the economy of vegetables; but much of this variety may be attributed to the different modifications of carbon (7), as well as of the other principles which enter into their constitution (8).

What products of vegetation are there which are indebted to carbon for their formation?

Carbon not only constitutes the base of the woody fibre, but is a component part of sugar, and of all kinds of wax, oils, gums, and resins; and of these again how indefinite is the variety!

How are these substances formed by the vegetating organs of plants?

All living vegetables have the power of decomposing water (9), and of combining in different proportions the hydrogen of the water with the carbon of the soil, as well as with that of the carbonic (10) acid of the atmosphere (11), to form the numberless productions of vegetable nature (12).

If carbon and hydrogen enter into the composition of all these substances, how is it that one vegetable affords gum, another resin, another oil, &c.?

The infinite variety which there must be in the internal organization of vegetables, to enable different orders to prepare such different substances from the same elements, renders this subject too intricate and minute for our investigation. We feel the insufficiency of our faculties—"The will of God is the ultimatum of all human knowledge."

Is it known what other substances are employed by nature for the formation and growth of vegetables?

All orders of vegetables are produced from four or five natural substances, viz. caloric, light, water, air, and carbon (13). Nature has required only these in or-

der to form even the most exquisite of her productions—"With hues on hues expression cannot paint, The breath of Nature, and her endless bloom."

gaseous form, and to put it in a proper state to be thrown off by the leaves. The other portion of oxygen goes to the formation of sugar and the vegetable acids. The analysis of vegetables confirms this theory; for, however they may be examined, the result is always the production of oxygen, hydrogen, and carbon. Some plants yield also a portion of silica, and others lime; but these no doubt are taken up by the roots from the soil. See Sir Humphrey Davy's paper on the silica found in the epidermis of reeds, &c. in Nicholson's *Journal of Philosophy*, &c. for May, 1799.

When we consider that the many thousand tribes of vegetables are not only all formed from a few simple substances, but that they all enjoy the same sun, vegetate in the same medium, and are supplied with the same nutriment, we cannot but be struck with the rich economy of Nature, and are almost induced to doubt the evidence of those senses with which the God of Nature has furnished us. That it should be possible so to modify and intermingling a few simple substances, and thence produce all the variety of form, colour, odour, &c. which is observable in the different families of vegetables, is a phenomenon too astonishing for our comprehension. Nothing short of Omnipotence could have provided such a paradise for man.

"Soft roll your incense, herbs, and fruits, and flowers, In mingled clouds to Him, whose sun exalts, Whose breath perfumes you, and whose pencil paints."

(14.) The various orders of vegetables provided in every part of the globe for the countless forms of animated existence, are eminently illustrative of the provident care of the Creator, and show us how great and how good is the Father of the families of the whole earth. The following passage from St. Pierre's *Studies of Nature* is so well calculated to impress this truth, that it is unnecessary to apologize for its introduction:—"The sluggish cow pastures in the cavity of the valley; the bounding sheep on the declivity of the hill; the scrambling goat browses among the shrubs of the rock; the duck feeds on the water-plants of the river; the hen, with attentive eye, picks up every grain that is scattered and lost in the field; the pigeon, of rapid wing, collects a similar tribute from the refuse of the grove; and the frugal bee turns to account even the small dust on the flower.—There is no corner of the earth where the whole vegetable crop may not be reaped. Those plants which are rejected by one are a delicacy to another, and even among the fanny tribes contribute to their fitness. The hog devours the horse-tail and hen-bane; the goat, the thistle and the hemlock.—All return in the evening to the habitation of man, with murrurs, with bleatings, with cries of joy, bringing back to him the delicious tributes of innumerable plants, transformed, by a process the most inconceivable, into honey, milk, butter, eggs, and cream."

Fourcroy has remarked that "vegetables may be considered as beings intended by nature to begin the organization of crude matter, and to dispose the primitive materials of the earth and atmosphere in order to become the source of life, and consequently to establish a communication between minerals and animals; from whence it follows, that plants are truly chemical apparatus employed by nature to produce combinations which would not take place without them.—Fourcroy's *System of Chemistry*.—Nature is as admirable in the simplicity of her means, as in the constancy and regularity of her operations.

(9.) When we decompose water, we can do it only by abstracting its oxygen and liberating the hydrogen, which is easily effected by some combustible bodies. But vegetables perform this process in a different way: they preserve the hydrogen and set the oxygen free. This process of Nature in the latter instance, has been noticed in a former chapter.

Berthollet has remarked that the decomposition of water must always take place to give rise to substances of a resinous character, when the vegetation is performed without the concurrence of foreign bodies. See his *Essay on Chemical Statics*, vol. ii. page 393.

(10.) Van Helmont planted a willow, weighing fifty pounds, in a certain quantity of earth, covered carefully with sheet lead: he kept it in this state for five years, watering it with distilled water; and at the end of that time the tree weighed 169 pounds three ounces: the earth in which it had vegetated being weighed at the same time, was found to have lost only three ounces. This was repeated by Mr. Boyle with a similar result.

(11.) Organized beings cannot live upon the matter in which they vegetate: Nature, therefore, by making the air their food, has afforded them nourishment, without offering violence to their tender organs.

(12.) Senebier found that plants watered by water impregnated with fixed air grew more luxuriantly than plants watered as usual; and that when insulated from every substance which could afford it to them immediately, they acquired carbon by the decomposition of carbonic acid gas in the atmosphere. This they take in by the under surface of their leaves, as well as by their roots.

It appears from hence, that it is not requisite to the growth of vegetables that matter should be presented to them in the solid form, but that they owe their increase chiefly to the decomposition of water and carbonic acid.

(13.) It has been shown that water and atmospheric air are the natural food of plants. Caloric is necessary to enable vegetables to decompose water and air; and light is equally requisite to give a part of the oxygen of these substances a

der to form even the most exquisite of her productions—

"With hues on hues expression cannot paint, The breath of Nature, and her endless bloom."

How is it that such an inexhaustible variety of forms, colours, tints, odours, tastes, qualities, &c. so conspicuous in this kingdom of Nature, can be produced from such a scanty number of natural substances?

The means by which all this is effected are unknown to us: but this we know, that "these wonderful harmonies are not by necessity in the nature of the elements, but in the will of Him who has ordained them, in subordination to the wants and the enjoyments of his numerous creatures (14)."

What is the office of carbon in the animal kingdom?

As carbon is a necessary part of sugar, of oils, &c. it consequently enters into the composition of animal milk, and of animal oils and fat; it is also found in albumen, gelatine, fibrina, and in many of the animal secretions.

Does carbon enter into any mineral combinations?

It is imagined that most of the metals may be combined with carbon: but at present we know only of its combination with iron.

gaseous form, and to put it in a proper state to be thrown off by the leaves. The other portion of oxygen goes to the formation of sugar and the vegetable acids. The analysis of vegetables confirms this theory; for, however they may be examined, the result is always the production of oxygen, hydrogen, and carbon. Some plants yield also a portion of silica, and others lime; but these no doubt are taken up by the roots from the soil. See Sir Humphrey Davy's paper on the silica found in the epidermis of reeds, &c. in Nicholson's *Journal of Philosophy*, &c. for May, 1799.

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PRICE CURRENT.

ARTICLES.	New-York, Nov. 6.	Boston, Nov. 12.	Philadelphia, Nov. 15.	Baltimore, Nov. 16.
Beef, white, per bushel,.....	2 12-2 25	2 00-2 00	1 75-1 87	1 75-1 87
Beef, per cwt.,.....	6 70-7 00	6 00-6 00	6 25-6 50	6 25-6 50
Butter, western, per lb.,.....	0 08-0 10	0 08-0 10	0 08-0 10	0 08-0 10
Butter, fresh, per lb.,.....	0 12-0 15	0 11-0 13	0 11-0 13	0 11-0 13
Cheese, per lb.,.....	0 08-0 10	0 08-0 10	0 08-0 10	0 08-0 10
Cotton, best, per lb.,.....	0 11-0 12	0 11-0 12	0 11-0 12	0 11-0 12
Flour, best, per barrel,.....	6 00-6 50	6 25-6 50	6 00-6 50	6 00-6 50
GRAIN.—Wheat, per bushel,.....	1 10-1 15	1 25-1 30	1 10-1 15	1 10-1 15
Rye, per bushel,.....	0 70-0 75	0 80-0 85	0 70-0 75	0 70-0 75
Oats, per bushel,.....	0 31-0 41	0 40-0 45	0 31-0 41	0 31-0 41
Corn, per bushel,.....	0 65-0 68	0 70-0 75	0 65-0 68	0 65-0 68
Hemp, per lb.,.....	0 10-0 13	0 10-0 13	0 10-0 13	0 10-0 13
Pork, per lb.,.....	5 50-6 00	5 00-5 50	5 00-5 50	5 00-5 50
Seeds.—Red Clover, per bushel,.....	10 00-13 00	10 00-13 00	10 00-13 00	10 00-13 00
Timothy, per bushel,.....	12 00-15 00	12 00-15 00	12 00-15 00	12 00-15 00
Wool.—Saxony, fleece, per lb.,.....	0 55-0 60	0 55-0 60	0 55-0 60	0 55-0 60
Memo, per lb.,.....	0 55-0 60	0 55-0 60	0 55-0 60	0 55-0 60
1 and common, per lb.,.....	0 37-0 40	0 45-0 48	0 37-0 40	0 37-0 40
Sheep, per head,.....	1 50-2 50	1 50-2 50	1 50-2 50	1 50-2 50
Cows and Calves, each,.....	25 00-30 00	25 00-30 00	25 00-30 00	25 00-30 00

Prospectus of the Cultivator, Vol. VII.

A CONSOLIDATION OF

Buel's "Cultivator" and the "Genesee Farmer."

WILLIS GAYLORD AND LUTHER TUCKER, Editors.

JESSE BUEL & Co. Proprietors.

THE first number will be issued in January, 1840, at which time all existing subscriptions will terminate, and the paper will be discontinued, unless the subscriptions shall have been or are renewed. The price, as heretofore, will be *One Dollar* a year, payable in advance. Postmasters, agents and others, who will obtain subscribers, and transmit the subscription moneys free of charge, will be allowed commissions at the following rates:

For ten subscribers or over, - - - - -	10 percent.
twenty or over, - - - - -	15 "
fifty or over, - - - - -	20 "
one hundred or over, - - - - -	25 "

On ten or more copies for schools, or agricultural premiums, a discount will be made of 33 per cent.

It has been decided by the Postmaster-General, that postmasters have the right to enclose money to the publishers of newspapers, for third persons. This liberal construction of the post-office law, we hope, will induce postmasters to take an interest in the circulation of the Cultivator, which we may assume, without vanity, will tend to improve agriculture wherever it circulates, and consequently to benefit the neighborhood.

The publication of the Cultivator was commenced at 25 cents per volume; the price was afterwards advanced to 50 cents, and at the commencement of the fifth volume, to one dollar per annum. It is due to our patrons and ourselves to explain the cause of this increase in price. The size of our pages has been enlarged, the quantity of matter increased, and the quality of the paper improved, until the expense of type-setting and paper, the two prominent items of our expense, is now more than double what it was when the price was fifty cents, and four times as great as it was when the price was but twenty-five cents. To enable the reader to judge of its now relative cheapness, compared with literary periodicals, we state for their information, that a volume of the Cultivator, including its usual extra sheet, contains about double the quantity of matter that is contained in two volumes (published in a year) of the North American Review. The subscription price of the two volumes of the Review is five dollars—that of the Cultivator one dollar. To be equal, in proportion to the quantity of matter, the price of the Cultivator should be ten dollars a year.

We are enabled only to print the Cultivator at this small price, from the extent of our subscriptions; and we are indebted for our liberal subscription to the kind offices of our correspondents and agents. To these we tender again our hearty thanks, and respectfully invite a continuance of their favors, both in behalf of the publishers and their patrons.

No papers will be forwarded to any subscriber, unless paid in advance, either to the proprietors, or to their authorized agents.

Should any gentleman to whom the Prospectus may be sent lack leisure to present it to his neighbors, he will do us a favor, and we think a public service, by placing it in the hands of some one who will take an interest in soliciting subscriptions.

Agents will please number the subscribers whose names they send us, from one onwards, the more readily to determine the total, and to assist in keeping accounts correct.

To meet the public demands, we have published a new edition of our four first volumes, which may be had, stitched, at 50 cents per volume, and also in different forms of binding, with the addition of the binders' charge. Bound copies have been forwarded to our agents in Boston, New-York, Philadelphia, Baltimore, Washington, Alexandria, Richmond, Savannah, New-Orleans, St. Louis, Nashville, Hartford, Utica, Greensboro', Ga. and Norfolk, Va.

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In our next volume, we intend to dispense with advertisements, and print a semi-annual or quarterly advertising sheet, providing sufficient encouragement is given.

TO SEEDSMEN.—A young man who has been engaged in the seed business for a number of years, wishes to obtain a situation in a similar establishment. He is thoroughly acquainted with the business in all its branches, and can furnish testimonials from his last employer as to capability, and a line addressed to R. S. care of Wm. THORNTON, Seedsmen, Albany, N. Y. will meet with attention. Albany, Dec. 1st, 1839. It



FRUIT AND ORNAMENTAL TREES, ROHAN POTATOES, &c.—An extensive assortment of the finest varieties of Fruit Trees, and Ornamental Trees of large size. A fine collection of Herbaceous Plants, Paeonies, Roses, &c. 80,000 genuine Morus Multicaulis of large size, the growth of Virginia. Also, 1,000 bushels Rohan Potatoes. Orders addressed to the subscriber will receive prompt attention. Newton, (Mass.) Dec. 1, 1839. JOHN A. KENRICK.

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second series—price \$20, including a case. From the Hon. JOHN C. SPENCER, Secretary of State and Superintendent of Common Schools.

Office of Superintendent of Common Schools, Albany, October 30, 1839.

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JOHN C. SPENCER.

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"Messrs. Harper—Gentlemen—I have availed myself of the opportunity you have afforded me, to examine the second series of the School District Library; and though I thought the first a very judicious and appropriate selection, I am inclined to believe the second preferable to it. Some of the books contained in it I have never read, but the subjects of which they treat are such as should in an especial manner be presented to the class of readers for which the library is intended.

"The introduction of libraries into our district schools is a new and highly valuable feature in the system of popular education. The character of the books which you have published for this purpose, and the low price at which they may be obtained, must, I think, facilitate the establishment of such libraries. I sincerely hope that you will meet with sufficient encouragement to induce you to continue the series. I am with great respect, your obedient servant,

"W. L. MARCY."

The above, together with the First Series, are for sale by all the principal Booksellers throughout the state.

MORUS MULTICAULIS AND OTHER

MULBERRIES, &c.—The subscriber is now ready to receive orders to any reasonable amount, for trees of the Morus Multicaulis, or cuttings of the same. The trees are genuine, all being raised by the subscriber, either at his nursery here, or at his Southern establishment at Portsmouth, in Lower Virginia. Also, the Elain, Broussa, Canton and Moretti or Alpine, &c.

The collection of Fruits is of the most celebrated kinds. The catalogue of Fruit and Ornamental Trees and Shrubs, Roses and Herbaceous Plants, for 1839, is ready, and will be sent to all who apply. In that catalogue, the very best kinds of fruits, so far as proved, are particularly designated by a star. All orders will be promptly attended to; and trees, when so ordered, are securely packed for safe transportation. Nonantum Hill, Newton, Mass. 7th October, 1839.

WILLIAM KERICK.

MULBERRY TREES.—25,000 Multicaulis, Alpine and Expansa Mulberry trees, and a few thousand Silk Worms Eggs, for sale by S. E. GIBBS & SON, Address them at Brooklyn. October, 1839. 3t.

MULBERRY TREES.—A few thousand Mulberry Trees are for sale at the Albany Nursery. They consist of the Multicaulis, Brussa, Chinese, that is, the product of Chinese seed, and the common white. The prices will depend upon size and quality. The Brussa is more hardy than the common, and the Chinese about as hardy; and the three kinds are believed to be equal, if not superior, to the Multicaulis, for silk; though it is proper to add, none of the mulberries that we have tried are propagated with so much facility, from buds and cuttings, as the multicaulis. The prices will be conformed to the average market price. If

ROHAN POTATOES.—The subscriber is now prepared to furnish the above very valuable root for transportation, at \$5 pr. bbl. until the 1st Nov. delivered at Albany. Persons living at a distance, will find it to their interest to forward their orders early, so they will reach their destination before cold weather sets in. Orders enclosing five dollars, (postage paid) or more, will meet with immediate attention. CALEB N. BEMENT.

Three-Hills Farm, Albany, Oct. 1st, 1839.—3t

ROHAN POTATOES.—Orders received for Rohan Potatoes, at \$5 per Barrel, to be forwarded, as may be directed, without delay, by J. BUEL. If

FOR SALE—TWO SOUTH-DOWN BUCK LAMBS.—The subscriber imported, in the fall of 1837, two ewes and a buck, selected from the Earl of Leicester's flock, (Holkham,) of which the above is the progeny. Near Dobb's Ferry, Pa. July 20, 1839. Sept.—tf JAMES A. HAMILTON.

THE SUBSCRIBER has located in Albany, where he is manufacturing his machines for thrashing and cleaning grain. He may be found at 53 North-Market-st. or at his machine shop on Patroon's Creek, near the Manor House. Sept. 2, 1839. [oct. 3t] JOHN A. FITTS.

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The imported Herd-Book bred bull Bloomsbury is with the Cows for the season, and from present appearance will soon all be in calf. The yearlings and spring calves are all by my bull Snow-Ball, late Minerva, by Wye-Comet, dam Nello, bred by Israel Munson, Esq. of Boston, got by the imported bull Admiral, grand-dam Rosa, bred by Mr. Munson, by the imported bull Denton, owned by Stephen Williams, of North-borough, Mass.; great-grand-dam Tuberosa, bred by Mr. Wetherall, and imported by Mr. Munson.

For further particulars, see Herd-Book; Dishley, page 63; Durham, page 567; Wye-Comet, page 200; Admiral, page 2; Denton, page 43; Tuberosa, page 524.

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